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"THE CHEMISTS' AND DRUGGISTS' DIARY" FOR 1903

Is Now Being Prepared.

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Every workday during the year.

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Should insert a comprehensive advertisement
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Summary.

NEW STORE-PRICES for druggists' goods are mentioned on p. 412.

EXETER CHEMISTS have agreed to support the Drug-trade Appeal Fund (p. 420).

"XRAYSER" chides Mr. W. S. Glyn-Jones for inferring that the poison-trade is a bother (p. 421).

A NUMBER OF USEFUL NOVELTIES are described this week in our Trade Notes section (p. 457).

THE bleaching-powder ring is to terminate at the end of this year, and prices are to be lower (p. 425).

A NEWSPAPER CAMPAIGN against substitutors in the drug-trade appears to have commenced (p. 425).

MERCURIAL OINTMENT and sweet spirit of nitre are the Sale of Food and Drugs Act cases reported on p. 456.

A SHOP including a drug-department has been opened in Glasgow in which everything is sold at 1*d.* (p. 414).

MOTOR-PETROLEUM has brought the Locomobile Company into Court, as they had too much in one place (p. 455).

THERE is a movement in Ireland to oppose the use of aërated-water bottles with embossed names on them (p. 456).

THE well-known checkered gelatin-wrapper has failed to get registration as a trade-mark in New Zealand (p. 455).

SOME preliminary particulars are given on p. 424 of the Jubilee meeting of the American Pharmaceutical Association.

THE Pharmaceutical Society is proceeding against an unqualified assistant in Aberdeen for selling oxalic acid (p. 455).

WE briefly summarise the trade-information given in the Inland Revenue Commissioners' report, published this week (p. 423).

THE two warehousemen charged with being in illegal possession of saccharin have been fined 500*l.* and 550*l.* respectively (p. 455).

AN account of pharmaceutical education and examination in Ontario, illustrated with a series of photographs, is printed on p. 427.

THE CITY CORONER'S JURY has this week expressed itself very freely in regard to the indiscriminate sale of poisons by oilmen (p. 459).

THE INLAND REVENUE AUTHORITIES have prosecuted a number of small shopkeepers for selling stamped medicines without a licence (p. 455).

TORQUAY CHEMISTS are very angry with the Pharmaceutical Society for not giving more attention to "bread and butter" questions (p. 415).

IT has been elicited by Mr. John Barclay, of Birmingham, that wholesale druggists will reap little advantage from the duty-free alcohol concession (p. 460).

WE print a report of the annual meeting of the German Pharmaceutical Society, which dealt with some peculiar grievances of German apothekers (p. 426).

MR. JESSE BOOT objects to the way that Mr. Glyn-Jones speaks about companies' responsibilities in branch-shop management, and Mr. Glyn-Jones replies (p. 426).

THE International Commission which is to meet in Brussels ten days hence to discuss the equalisation of potent remedies, is referred to in an article on p. 425.

THE TRANSVAAL PHARMACEUTICAL SOCIETY has resumed its labours, and is to endeavour to get the colonial pharmacy law made to conform with that of Great Britain (p. 416).

COMPLETE information is given in this issue in regard to the education and examinations for qualification in pharmacy, medicine, dentistry, veterinary surgery, and science (p. 432).

MR. LORD GIFFORD, in a letter printed on p. 460, states, as a member of the Pharmaceutical Council, that a piece of jobbery is being transacted—apparently by it, but his language is vague.

MR. JOHN MOSS died on Tuesday. Some particulars of his career are given on p. 418. Another sad death is that of Mr. Andrew Pears, jun., who was chemist to A. & F. Pears (Limited).

FLUCTUATIONS in the market include a reduction in makers' prices of quinine and salts, and an advance in codeine and salts. Golden seal and rose-petals are also higher. The drug-auctions are reported on p. 463.

A DAUGHTER, visiting her mother, took in error for her own medicine a dose of her mother's morphia-mixture and died. The doctor who supplied both medicines was severely dealt with by the Battersea Coroner and his jury (p. 459).

C

English News.

Local newspapers containing marked items of news interesting to the trade are always welcomed by the Editor.

Brevities.

Mr. F. Willis Stoddart, F.I.C., F.C.S., of Bristol, has recently been appointed public analyst for Barnstaple. (Corrected note.)

Lord Mount Stephen and Lord Strathcona have given as much to King Edward's London Hospitals Fund as will yield 16,000*l.* a year.

Dartford Rural District Council has accepted the tender of the United Alkali Company (Limited) for the supply of manganate of soda for a year.

The chemists and druggists of Blackburn have joined with the other tradesmen of the town in fighting the Co-operative Stores on the principle adopted at St. Helens.

At a property-sale at Crook, Durham, on August 27, the business-premises at Hope Street, Crook, occupied by Mr. T. Wilkinson, chemist and druggist, were sold for 905*l.*

At Tonbridge on September 2, George Collins Branchley was fined 10*l.*, with the alternative of two months' imprisonment, for selling paraffin [heavy petroleum oil?] for olive oil.

At Lambeth Police Court on September 1, George Edmondson was sentenced to a month's imprisonment for stealing three bottles of scent, the property of a chemist named Jackson, carrying on business at Brixton.

Six "chemists and druggists" (which means persons in the drug-trade) failed in England and Wales during the five weeks which ended on August 30. In the same time last year there were only two, but in 1900 eight.

The Northwich Bench on August 25 had before them a woman named Collins, who was charged with hawking insect-powder without a licence. The woman stated that she bought the insect-powder at a chemist's shop, made it up into packets, and then tried to sell it. She was discharged with a caution.

An attraction is being furnished to the general public in Manchester by the window-show of Messrs. Flatters & Garnett (Limited), chemists and druggists, Deansgate. Perched on a beech-log, a stuffed cat holds a label in its paw, which a stuffed fox-terrier is endeavouring to reach. The label refers to a new liquid skin-plaster, of which there is an abundant supply in the window.

At the quarterly communication of the United Grand Lodge of Free and Accepted Masons of England, held at Freemasons' Hall on Wednesday evening, September 3, the Earl of Warwick, Deputy Grand Master, presiding, a vote of thanks, moved by Lord Warwick, and seconded by the Hon. Alan de Tatton Egerton, was unanimously passed to Mr. H. S. Wellcome for the gift to the Grand Lodge of Mr. Hardie's portrait of George Washington.

It is proposed to form a Society of Electro-chemists with the view of bringing together those who are interested both theoretically and practically in the subject of electro-chemistry, and thus encouragimg a science that is daily becoming of increasing technical and commercial importance. The committee consists of Mr. J. Swinburne, Dr. F. M. Perkin, Dr. Donnan, Mr. W. R. Cooper, Mr. S. Cowper-Coles, and Mr. H. V. Simpson, Grosvenor Mansions, Victoria Street, S.W., the last-named being Hon. Secretary.

From Canada to South Africa.

The new subsidised monthly service of steamers from Canada to South Africa will be begun by the Allan steamer *Ontarian* from Montreal on October 18, followed by the Elder-Dempster liner *Melville* on November 18, and the Furness steamer *Oriana* on December 18. Messrs. Elder, Dempster & Co. are prepared to give free passages from Canada to Liverpool by their Beaver Line to anyone whose journey has for its object the development of trade between Canada and South Africa.

No Appeal.

The Holborn Vestry has decided to abandon the appeal against the Magistrate's decision in the methylated soap-liniment case. It will be remembered that the Magistrate held that the sale of this liniment was not an offence under the Sale of Food and Drugs Act, and the proposed appeal was one of some importance to the drug-trade, as it raised the clear issue of commercial *versus* B.P. standards.

Store Prices.

The September price-list of the Army and Navy Stores contains but few alterations. The following indicate some of those not already noted, and a few additions:—

Ward's insect death, 10*d.* and 2*s.* 1*d.* per tin; eau de quinine (A. & N.), 1*s.* 4*d.* and 2*s.* 7*d.* per bottle; Anker's bouillon capsules, 10½*d.* per box; Berwick cough-mixture, 1*s.* and 2*s.* 1*d.* per bottle; Burn-O (for use with methylated spirit), 5½*d.* and 10½*d.* each, 5*s.* 3*d.* and 10*s.* per dozen; Crab-apple Blossom Cologne, 2*s.* 6*d.* per bottle; Keating's insect-powder, 1*s.* 9*d* per ½-lb. tin; English lavender-flowers (free from stalks), 5*s.* per lb.; Bond's non-heating marking-ink, 3½*d.* and 6½*d.* per bottle; pneumatic puffs, 11*d.* each; carbolic-acid liquid (for medical use), 8*d.* per 4-oz. bottle, 1*s.* 6*d.* per 16-oz. bottle; Roger & Gallet's extrait amberose, 10*s.* per bottle, powder 5*s.* 3*d.* per box; soda silicate (concentrated solution for preserving eggs), 1*s.* 3*d.* per bottle, 2*s.* per gal. (tin 6*d.*, non-returnable; pierced Cologne-case, electro-plated, with stopper, 3*s.* each; "Blitz" (pocket electric light), 4*s.* 6*d.* each; indiarubber sponges (limited supply), 1*s.* 3*d.* to 1*s.* 6*d.* each.

Copper sulphate is likewise quoted at 25*s.* per cwt. keg.

Analyst's Report.

Mr. J. F. Liverseege, F.I.C., Ph.C., has issued his first quarterly report as public analyst for the city of Birmingham. He states that of five samples of white-precipitate ointment received only two were of the proper composition. One sample contained 13 per cent. of white precipitate, instead of 10 per cent., the proper quantity, probably as the result of carelessness in making. Another sample was deficient of three-quarters of the correct quantity of white precipitate, and had in addition 12 per cent. of zinc oxide. In the case of the third sample 9½ per cent. of zinc carbonate had been used instead of 10 per cent. of white precipitate. The fat used was not paraffin ointment, but probably lard. None of the three adulterated samples was obtained from a registered chemist. The vendor of the last sample was prosecuted, and on promising to give up the business was only ordered to pay 7*s.*, the cost of the prosecution. Eight samples of camphorated oil were properly prepared with olive oil, and contained from 20·8 to 23·6 per cent. of camphor, quantities not very different from the proper proportion. One of seven samples of compound tincture of benzoin was slightly deficient in strength, containing 167 grams of solid matter per litre, while the quantity present in the others varied from 174 grams to 226 grams. Seven samples of white pepper and five samples of tincture of iodine were all found to be genuine.

Presentation to Dr. W. T. Law.

It will be remembered that in March of this year a nurse sued Dr. W. T. Law in the Court of King's Bench for damages alleged to be due in consequence of the doctor prescribing narcotics for her. She lost the case. A sequel to it has been maturing for some time, and at the Holborn Restaurant on August 29 Sir William Church presided over a meeting of Dr. Law's sympathisers. Dr. Glover proposed, and Dr. Ewart seconded, the following resolution:—

That this meeting rejoices at the success of the Law Fund, and congratulates Dr. W. T. Law on the practical sympathy he has obtained from nearly 700 members of the medical profession, besides some members of the public.

Sir William Church then presented a cheque for 500*l.* to Dr. Law, who had previously received 110*l.*, the result of contributions by medical men through the *Lancet* and *British Medical Journal*, which were gathered through the initiative of Dr. Richard Paramore.

North Wales Notes.

At Prestatyn, Mr. G. E. Gratton, of Queen's Circus, Rhyl, has opened a neat branch pharmacy. Whether so small a

place will support two pharmacists remains to be seen. At present the public will most probably be the gainer.

Colwyn Bay is a very thriving watering-place, and, judging from the well-fitted, high-class pharmacies there, the chemists have their share of patronage. Complaints of bad trade are rife, however, the bad weather and the uncertainty of the Coronation events being attributed as causes.

In Llandudno there are some first-class pharmacies. Messrs. Burton & Sons and Messrs. Roberts & Sons have two each, and all seem to be very busy. Photography appears to occupy first place, with the sale of perfumes and toilet-requisites as a good second, and lotions for the removal of sunburn-freckles are much in demand. One chemist said dispensing was at a discount, for little sickness was known, and even the doctors were complaining. A well-known member of the brotherhood informs our correspondent that a high official of the Pharmaceutical Society was recently seen disporting himself unofficially at this well-known resort.

A Hardy Annual.

The working staff and a few of the former employés of Messrs. J. H. Thomas & Son, chemists and mineral-water manufacturers, Market Place, Boston, were entertained to supper by the firm on August 29. This annual function has been the custom of the firm for an unbroken period of seventy-eight years. This year an extra *éclat* was added from the fact that August 29 was the "silver wedding day" of Mr. Frank Thomas, the head of the firm, and the employés presented Mr. and Mrs. Frank Thomas with a pair of chased Benares silver vases. After supper, cinematograph and gramophone (worked by Mr. F. Thomas, jun.) kept the company in good humour till midnight, when a reluctant breaking-up took place.

Outing.

On August 27 the Cardiff and District Pharmaceutical Association held their second outing for the season. About fifty attended, and were conducted by Mr. R. Drane (President) to the well-known ruins of Caerphilly Castle, where he exhibited various articles of interest peculiar to the period in which the castle flourished. The party then proceeded to the Boar's Head to tea, which was followed by a social evening—an exceptionally enjoyable feature. Songs were sung by Misses Hilda Evans, Ethel and Mabel Jones, and Messrs. W. Shapland, Dobbs, G. Reynolds, and Mortimer. The party returned to Cardiff by the 10.45 train, all having thoroughly enjoyed the outing.

Birmingham Notes.

Birmingham Guardians have appointed a temporary dispenser at the Workhouse Infirmary at 3*l.* a week. It was suggested at the meeting on Wednesday that this was rather a high salary, but Mr. Page (Chairman of the Infirmary Committee) satisfied the Board that it was not, considering the large amount of work the dispenser had to get through.

Early on Wednesday morning an enterprising burglar paid a visit to the shop of Messrs. Needham, formerly Magor (Limited), at the lower end of Corporation Street, and managed to get off with two bags containing gold, silver, and copper, to the value of about 7*l.* There is no safe on the premises, and it has been the custom to hide the money taken after the daily bank deposit in various out-of-the-way places. In the present instance a quantity of senna in the corner of a cellar was the hiding-place, and here the thief discovered it, after he had ransacked several drawers in the shop. Entrance was gained through the cellar, for the door which leads from it into the office was forced, the lock being broken.

Cause of Death Uncertain.

At Brighton on August 2, Mr. Bush (Borough Coroner) held an inquest on the body of Elizabeth Booth, a boarding-house keeper, who died suddenly. Louisa Welsh, a widow, who had lived with deceased, deposed that Miss Booth was seized with vomiting and pain in the bowels, but refused to see a doctor. As she got worse witness went to a chemist's in the St. George's Road for some medicine for her. She did not know the name of the chemist. She had previously been to the same shop, but then saw an old gentleman, whereas a young one served her on the second occasion. Witness identified Mr. Arthur Thomas Jeeves, chemist and druggist, who was in the room, as the gentleman who served her with the medicine. He gave her something in the bottle produced. She went home and gave the medicine to Miss Booth, who, about five minutes afterwards, became worse. Dr. Rowland was sent for, and deceased was taken to the Borough Hospital. Witness had been at the same chemist's for castor oil about a fortnight or three weeks before, when she then saw the old gentleman. She was absolutely certain she went to the same chemist's on the occasion in question. Arthur Thomas Jeeves, of Jeeves & Son, chemists, 88 and 89 St. George's Road, said he did not see the last witness on the night mentioned, and if she had come as she said he must have seen her. He remembered her calling about a week before, and it was then he made up the draught that had been referred to, the remains of which were before the Court. The bottle contained bicarbonate of potash, carbonate of ammonia, two drops of dilute hydrocyanic acid, and water. The Coroner said it was a most extraordinary thing that the woman was so positive as to the date. Mr. Jeeves said he was equally positive that he did not serve her with anything on the date she stated. During the whole of that day no one was served with a draught. Dr. W. J. Rowland, who was summoned, said he found deceased unconscious. The witness Welsh told him deceased had taken some medicine she had procured from a chemist, and she showed him a bottle which still contained three or four drops, in which he detected hydrocyanic acid. He had suspected the kind of drug from the condition of the patient. The *post-mortem* examination revealed a diseased heart and kidneys. The symptoms rather indicated suffocation. Hydrocyanic acid was a drug which was absorbed rapidly, and as the stomach-tube had been used at the hospital it was very unlikely that any trace of it would be found in the body. The use of hydrocyanic acid would be proper in proper doses, and the two drops which Mr. Jeeves had given was a proper dose. He could not conclusively say what the cause of death was. Mr. Henry Watson, assistant house-surgeon at the County Hospital, said four medical men besides himself saw deceased on her admission, and all disagreed as to her symptoms. Their opinions were that it might have been a case of hydrocyanic-poisoning, or cerebral disease, or heart-disease, or aconite-poisoning. The jury were for returning a verdict of death from heart-disease, but finally agreed, on the advice of the Coroner, to adjourn the inquiry in order that the contents of the stomach and brain might be analysed.

Dover Chemists' Association.

The quarterly meeting of this Association was held at 37 Townhall Street, Dover, on September 3, Mr. G. F. Foster (in the absence of the President, Alderman Peake) presiding. The Hon. Secretary (Mr. Ewell) reported on the proceedings at the Conference-meeting at Dundee, where he attended as a delegate from the Dover Association. Owing to the small attendance and the absence of the President, discussion on the question of affiliation with the Federation of Local Pharmaceutical Associations was postponed.

The Wrong Tooth.

A young man asked Mr. Dickinson, at the Thames Court, whether his father could sue a dentist who had, on August 30, pulled out the wrong tooth. Mr. Dickinson: I believe that it is not an unknown act. Perhaps your father pointed to the wrong tooth, for at times it is most difficult to locate pain. I cannot tell him what would happen if he went to the county court, and I do not advise him to sue; but I should advise him not to go to that dentist again.

Fire.

On August 28 a slight outbreak of fire occurred at the rear of Mr. F. H. Glew's pharmacy at 156 Clapham Road, S.W. The firemen were successful in extinguishing the flames before they had spread beyond the shop, which, with its contents, was somewhat damaged by fire, heat, smoke, and water, whilst the rest of the house suffered slightly from the effects of heat and smoke.

The Week's Poisonings.

During the past week eleven cases of poisoning have been recorded, all being scheduled poisons. Carbolic and oxalic

acids are responsible for three each. Aconite, belladonna cyanide of potassium, morphia, and solanine for one each. At West Hampstead a house-painter entered an oil-shop and asked for twopennyworth of oxalic acid, which the proprietress, being in the habit of serving him with this for trade-purposes, gave him. Before she had time to label the bottle (so the report goes) he seized it and drank the contents.—A workman at New Brompton appears to have swallowed carbolic lotion by mistake. His wife had purchased twopennyworth of a chemist in Marylebone for her husband, who had been using the lotion for a sore leg. He was found dead with symptoms of having swallowed carbolic acid. The acid had been properly labelled and supplied in a poison-bottle.—An elderly lady at Whittington committed suicide by drinking a liniment which her brother kept for rubbing his shoulder; the liniment contained aconite and belladonna.—A man in Battersea killed himself by swallowing some liniment containing turpentine and belladonna, which he used for sciatica.—At Christchurch a man, after a quarrel with his wife, drank some solution of cyanide of potassium and died shortly after.—A case is reported from Bristol of a child having died from the effects of eating raw potatoes with the skins, death being attributed by the analyst to solanine-poisoning.

Irish News.

Local newspapers containing marked items of news interesting to the trade are always welcomed by the Editor.

Vitriol for Toothache.

Last week a young girl named Honor Cusack, daughter of Mr. Patrick Cusack, Gostnaclassagh, near Westport (co. Mayo), died from the effects of using vitriol for cure of toothache. On August 27 she had three teeth extracted, but in the evening pain returned in other teeth, and she got a pennyworth of vitriol from Mrs. Mulloy's drug-shop. The girl applied some of the vitriol to the teeth, but some of the liquid reached her throat and caused severe inflammation, from which she died next day.

The Recoupment Question Again.

At the last meeting of the Carlow Board of Guardians a letter was read from the Local Government Board stating that recoupment could not be allowed on 51*l.* 7*s.* 11*d.*, which amount represented drugs for which no certificates of analysis had been forwarded. The Clerk was instructed to write to the medical officers concerned, and to point out that an expenditure of about 26*l.* had been thrown on the rates through their default in not sending samples of the medicines for analysis.

Scotch News.

Local newspapers containing marked items of news interesting to the trade are always welcomed by the Editor.

Conference Snapshots.

Mr. John Cummings, of Alloa, secured an excellent series of snapshots while attending the British Pharmaceutical Conference at Dundee. Beginning at the garden-party in the University College grounds, he got a good picture of "The Wizard" intent on a cup of tea, and Mr. and Mrs. J. C. Umney are caught in the background. In another, Mr. Russell and three ladies are again in front, behind them being Mrs. N. H. Martin and Miss Martin, and to the east a back-view of Mr. Watson-Will in a characteristic attitude. A third picture shows Mr. J. M. Hardie, in his light summer attire, carrying cream to some fair lady; and there is a back-view of Mr. J. H. Thomson on the same picture, as well as a snap of Mr. N. H. Martin in the distance. Then comes one of the Local Secretary and his sister, Miss Cummings, of Alloa, who has said something that makes the Editor of the *C. & D.* smile. Mr. Cummings's pictures on board the steamer on the way to Perth are particularly good. In one he caught Messrs. C. Kerr, T. Maben, T. Tyrer, W. A. H. Naylor, G. F. Merson, G. C. Druce, W. F. Wells, and G. T. Turner (Bristol). Another snaps a group of gentlemen who had an animated talk about the title-question. In two snaps of Killin the picturesque rather than the personal is predominant.

Since the foregoing was set up in type we have received from Mr. Saville Peck two exquisite little photographs. One is an artistic view of St. Andrews, taken in the gloaming from the neighbourhood of Cardinal Beaton's castle, and showing Regulus Tower against a cloudy sky. The second shows the confab on the titles-question, from another point of view, Mr. Ransom and Mr. Jones (Hanley) standing prominently in the foreground.

Edinburgh Pharmacy Golf Club.

The monthly competition for the "Dick Handicap Medal" was played over the Braids last week. The result was as follows: Mr. D. S. Philp (winner), scratch, 80; Mr. D. McLaren, 87 – 5 = 82; Mr. G. H. Clarke, 105 – 12 = 93; Mr. J. Stewart, scratch, 94.

The Leaving-certificate Question,

which has an important bearing on the apprenticeship difficulty, has entered on a new phase. Teachers in Scotland are agitating against an order of the Board of Education which restricts the number of living languages recognised to two, so that a certificate will no longer be granted for such a set of subjects as English, mathematics, French and German.

A Curious Find.

On August 29, while Mr. A. U. Miller, chemist and druggist, Nairn, was bathing in the Moray Firth, he discovered a curious-looking stone in the water, having the resemblance of ironstone. Breaking off the corner, he found the haft of a bone knife containing part of the blade embedded in the stone. The knife appears to have been that of a sailor, as there is a hole at the end for attaching a cord, as was the custom years ago. It is thought that the blade by lying in the water had been acted upon by the salt, and this in course of time had become encrusted with sand, whereby the accretion resembles a stone.

Glasgow Notes.

At the suggestion of a Glasgow man of letters, a local chemist has written to Rudyard Kipling referring him to the *C. & D. critique* of "Wireless," and advising him in a friendly way to consult the nearest chemist before his next incursion into the labyrinth of pharmacy.

The Glasgow and West of Scotland Trade Association will have to change its name. As the result of the extended canvass, nearly a hundred new members have been enrolled, their venue reaching as far south as Berwick, and including Edinburgh and the East Coast. Mr. Glyn-Jones is to meet the committee next week.

A chemist in a quiet back street, who put a quaint mechanical figure in his window, has been quite startled by the attraction which it exercises. Even sedate, elderly people stood watching its gyrations with childish delight, and the sales of his window goods have increased so much that he now affectionately regards the figure as his *mascotte*.

Here is an item after Mr. Druce's own heart. At a recent meeting of the Natural History Society of Glasgow, Mr. P. Ewing, F.L.S., exhibited a large collection of Scottish-alpine plants, including *Caltha minor* (Syme), *Cochlearia micacea* (Marshall), *Saxifraga cernua* (Linn.), *Gentiana nivalis* (Linn.), *Orchis incarnata* (Linn.), and *Carex ustulata* (Wahl.).

A chemist in the outskirts has had a harassing but instructive experience. A hospital prescription sent to him to be dispensed contained hydrarg. perchlor. and spt. ammon. arom. The chemist communicated with the prescriber to point out that this would form an insoluble ammoniated compound of mercury, and was instructed to omit the spt. ammon. arom. and put in liq. arsenicalis (Fowler). He had then very reluctantly to notify the prescriber that the potass. carb. in the liq. arsenicalis would precipitate

mercuric oxide, when he was somewhat curtly told to use the acid solution. He now wonders whether he would not have been justified in doing this "off his own bat."

The latest sensation in pharmaceutical circles is the circular of a company calling themselves "Cheap and Good (Limited)." This new combination have issued a florid circular, in which they allege that they are prepared to supply a confiding public with the best quality of goods in the "chemists', grocers', or small-ware" line at the uniform price of 1*d.* per packet. The following extract will suffice to show the tactics adopted:—

Our system of serving the public with drugs is simple: we sell everything in a concentrated form; you don't pay us for big bottles and bulky packages; we sell you the essence—the real thing. For instance, all drugs that can be compressed into tablets are sold so, and when you take the tablets you take the real medicine. When drugs are in a liquid form, we supply you with the concentrated essence—you simply add the water; we sell you the substance, not the shadow. . . . We do not mystify you. We tell you all about every drug and what it is for; we give you all the benefit of the latest discoveries. Our goods are up to the first standard; we have no second quality, no guess-work in preparing our medicines, no preparations made up in a hurry, no stale drugs. Don't throw your money away on bottles of water. . . .

The list of goods to be supplied contains such varieties as extract of malt, "maccaroni," "soothing-syrup for babies," split peas, "quinnine"-and-iron tonic, button-hooks, "seidleitz"-powders, clothes-pins, chloride of lime, and potted ham and tongue. A select penny line in soup-ladles is likewise offered, together with insect-powder, bootlaces, gazogene-powders, and snuff.

French News.

(From our Paris Correspondent.)

The Anæsthetic Danger.—A veterinary surgeon here has lost his life as a result of absorbing too strong a dose of ether. He had been suffering from a violent toothache, and the anæsthesia was applied previous to his being operated on by a dentist. The latter contends that the patient administered the ether himself, and an expert has been appointed to decide the delicate question of responsibility in the case.

Trade-change.—The well-known firm of Adrian et Cie. has been dissolved and a new company formed, under the title of "La Société Française de Produits Pharmaceutiques Adrian et Cie." The capital is in 9,200 shares of 250f. (10*l.*) each, of which M. Adrian holds 8,800 shares fully paid, and he remains the sole responsible managing director, being assisted by a board of five pharmaeists. The change is thus a mere formality, and the new company's legal lease of life is fixed at thirty years.

The Pharmacists' "Day by Day."—The apartment occupied by M. Lacour, pharmacist, 148 rue Saint-Denis, Paris, was broken into a few nights ago during his absence. The burglars laid their hands on various articles of value worth 8,000f. (320*l.*), but they were arrested a few days later, and the instigator of the robbery proved to be a man who lived in the same house as M. Lacour.—M. Henri Canonne, pharmacist, rue Réaumur, Paris, has caught the motor-car fever, and was driving his vehicle early one morning last week along the Boulevard de l'Hôpital at a moderate pace. Suddenly an old woman stepped from behind a cart and M. Canonne's motor knocked her down before he could pull up. He immediately rendered all possible assistance, and finding no bones broken took the old lady in his motor-car to the nearest hospital to have her bruises dressed.—A nun of Plonéis, Brittany, Marie Ajean by name, has been prosecuted for illegal practice of pharmacy. It was proved that she acted simply as a philanthropist, accepting no payment, but she was fined 100f. (4*l.*), which was, however, rescinded under the First Offenders Act.

The Proprietorship of Catalogues.—Pharmacists often spend a good deal of time and ingenuity in getting up an attractive catalogue, and not infrequently find that some enterprising competitor pays them the doubtful compliment of eopying it more or less servilely. M. Canonne, the proprietor of a well-known "commercial" pharmacy at 49 rue Réaumur, Paris, prepared a catalogue and price-list in pamphlet form some time ago. It took the proportions of a small book, and was distributed in large numbers in Paris and the provinces. In it were quoted all the leading pharmaceutical specialities, as well as his own preparations. Not long after a eompetitor, who owns the "Grand Economical Pharmacy" in Paris, brought out a similar catalogue, printed in practically an identieal manner, and, in fact, produced by the same printer. M. Canonne thereupon commenced an action against his rival for unfair competition, and judgment has been given in his favour. The Court decided that if the defendant's catalogue was not aetually a case of unfair eompetition, it was at least produced in sueh a way that it could be mistaken for the plaintiff's, which must be considered as a reprehensible act. The defendant was ordered to discontinue the issue of the catalogue, under pain of a penalty of 5f. (4*s.*) for each one issued. He was also mulcted in the costs.

Torquay Chemists' Association.

A MEETING of this Association was held at the Pavilion Hotel, Torquay, on August 21, Mr. B. Knight (President) in the ehair. There were also present Messrs. Ness (Vice-President), Sloman, March, Lee, Waymouth, Rawling, Newlyn, Horner (Hon. Treasurer), and Young (Hon. Secretary). The Secretary reported the receipt of several letters from Mr. Layland Barratt, M.P., who had elicited from Parliament the fact that informers under the Patent-medicine Stamp Aet received a portion of the penalties recovered. This was considered to be a very unsatisfactory state of things, Mr. March remarking that the informer might be a discharged assistant with a grievance. The Secretary also reported that he had received no definite reply from the Pharmaceutieal Society to the resolution forwarded by him to that body *re* the frivolous and vexatious prosecutions of Torquay chemists by Inland Revenue authorities. Mr. March proposed, and Mr. Horner seconded, the following resolution:—

That this Associatiou hears with regret that no definite reply has been received from the Pharmaceutical Society to their Hon. Secretary's letter dated March 31, 1902, *re* frivolous and vexatious prosecutious by Iuland Reveuue authorities iu Torquay, and it is the opinion of the members of the Torquay Chemists' Association that more attention should be given by the Pharmaceutical Council to "bread-and-butter" questions.

This was carried unanimously, the Hon. Secretary being instructed to forward a copy to the Pharmaceutieal Society. Several members intimated that they had withdrawn their subscriptions to the Society on account of the Council and *Journal* confining themselves to discussing abstruse scientific questions, instead of endeavouring to benefit chemists engaged in business. Letters were read inviting the chemists of Torquay to join other traders in forming a local chamber of commerce, but it was considered advisable to restrict the business of the Association to matters directly affecting the trade, and the offer was, therefore, declined. A rearrangement of the co-operative-buying movement was made, and satisfaction was expressed at the saving made by those who took part in the scheme. The Secretary then submitted the following letter* he had received from Somerset House authorities:—

Sir,—With reference to your letter of the 19th inst., I am directed by the Board of Iuland Revenue to explain that they do not object to chemists selling, without a spirit-retailer's licence, a few ounces of rectified spirit, provided the spirit be required for strictly medical or scientific purposes. Yours truly,

J. S. Byrne, Assistant Secretary.

Owing to the lateness of the hour, the consideration of the question of the Chemists' Defence Association was postponed. The suggestion was, however, made that if the Pharmaeeutical Society did its duty in defending certain questions affeeting the trade, there would be no need for the existence of such an Association.

* A more specific communication about the sale of S.V.R. appeared in the *C. & D.*, July 15, 1880, and particulars are given in The Chemists' and Druggists' Diary annually.—Editor.

South African News.

(From our Correspondents.)

Personal.—Mr. Harry Richards, chemist and druggist, formerly of Warminster, England, who has been managing a business at Potchefstroom, will shortly join his partner, Mr. E. P. Butler, in Johannesburg.

Convict Medicines.—Cleghorn's Pharmacy, Cape Town, has again secured the contract for the supply of medicines, &c., to the various convict-stations, those at the Breakwater and De Beers excepted. The contract extends over two years, expiring in August, 1904.

Transvaal Trade.—The drug and chemical imports into the Transvaal for the five months which ended on May 31 amounted to 132,000*l.*, against 19,000*l.* for the corresponding period of 1901. For the six months which ended in June the imports of similar products into Natal amounted to 91,000*l.*, as against 68,000*l.* last year.

A Window-smasher Wanted. — Some evil-disposed person hurled a stone through one of the plate-glass windows in the Swan Pharmacy, located at the corner of Bree and Shortmarket Streets, Cape Town, during the night of August 6. Notwithstanding that the window was insured, the proprietor (Mr. A. E. A. Tothill) has offered a reward of 20*l.* on conviction of the guilty party.

A Farewell Smoker.—The employés of Messrs. Heynes, Mathew & Co., of Cape Town, gave a farewell smoking-concert to Messrs. J. D. Buckle and A. A. Rae, both of whom were leaving the firm for pastures new. A most enjoyable evening was spent at the City Hall Hotel on July 29. Mr. Buckle was presented with a gold match-box and sovereign-case. Mr. H. Cope was in the chair.

Trade-mark and Patents. — Edwin Burgess, of Gray's Inn Road, London, England, has applied to the Registrar of Trade-marks, Cape Colony, to register a picture of a lion, in respect of patent medicines in Class 3.—Arthur James Rivett, managing director of Lennon (Limited), Cape Town, has applied for a patent covering a "new or improved means of apparatus for developing and fixing cartridge photographic films outside the dark-room in an actinic light."—Claude Boucher, sen., of Cognac, France, has applied for two patents—the first an "improvement in or relating to apparatus for shaping the bottoms of bottles," and the other "a machine used in the manufacture of glass bottles."

Assistants' Wages.—A correspondent sends us a cutting from the *Transvaal Leader* which, he says, will guide assistants intending to go to South Africa as to what they ought to receive in the shape of salary. The *Leader* article comments on the frequency of complaint to be heard among young men of the middle class (mercantile clerks, &c.) about Johannesburg regarding the disproportion of wages and the cost of living in that town. The conclusion come to by the writer is that at the present cost of living a monthly salary of 20*l.* can scarcely be looked upon as a living wage. In the Civil Service this fact has been recognised, and only junior clerks receive the minimum salary of about 200*l.* a year. Supplementing this warning, our correspondent's advice to intending emigrants is that they should never sign a three-years' agreement for South Africa until they have ascertained how far their salary will go. He adds that assistants have the matter pretty much in their own hands, as there is a great dearth of good assistants in the colony.

Johannesburg Notes.—At a meeting of the Johannesburg Town Council on August 6, the Health Committee reported that vendors of milk, from whom samples are taken for examination by the public analyst, are at present unable to have an independent analysis made of the portion of the sample which is left with them. The medical officer has therefore communicated with the Secretary of the Chemical Society of South Africa inviting him to supply the name of a competent analyst to whom such milk-vendors might be referred.—Mr. Geoffrey G. Baiss (representing Messrs. Baiss Brothers & Stevenson, W. Sutton & Co., and Johnsen & Jörgensen) was in Johannesburg early last month on the way to Pretoria, proceeding thence to Natal on a business trip.—Mr. Andrew Kidd, chemist and druggist, having sold his business in Johannesburg, has gone home on a health trip.—The drug-trade in Johannesburg is generally dull and not so good as it was a few months ago. This is no doubt due to the depressed state of the financial market and the limited working of the mines. Everything points to a gradual improvement in the near future.

Natal Notes.—Pharmaceutical affairs in Natal do not appear to be in a very flourishing condition from a scientific point of view, for the Pharmaceutical Society of Natal has not been able to convene a meeting since September, 1899. A correspondent accounts for this by stating that Natal chemists, and those in Durban more especially, have been too busy looking after the financial aspect of their business to notice the professional side. No doubt, as the entire continent of South Africa settles down, Natal will be to the fore in matters affecting pharmacy as a whole, since it can scarcely be that Natalia will be pleased to follow a policy dictated solely from Cape Town—which looks as if that is what it will amount to unless the Natalian brethren bestir themselves. There are several items connected with the trade in South Africa under consideration at the various capitals—items bearing on subjects of importance all round. —In honour of the Coronation, the Natal Government proclaimed August 8 and 9 public holidays, and all the stores were ablaze with decorations. The pharmacies closed during the afternoon of each day.—Mr. Fred Ingram, chemist and druggist, Braamfontein, Johannesburg, visited Durban last month on his way to the Rand from England.

TRANSVAAL PHARMACEUTICAL SOCIETX.

On August 5 the annual meeting of the members was held at Johannesburg. The President (Mr. R. Butters) reported as follows: Gentlemen,—Your committee, in submitting to you their fourth report, together with the balance-sheet for the year ended July 31, 1902, regret that, owing to the war, the past four years have had a most unprosperous record.

In May, 1899, when your deputation waited upon the then State Secretary (Mr. Reitz), we were under the impression that the Society was at last about to obtain a new law, and, from all accounts, Mr. Reitz would have done his utmost for us. However, that is all past history.

In April, 1901, the following letter was sent to the High Commissioner (Sir Alfred Milner):—

To his Excellency Sir Alfred Milner, High Commissioner, Johannesburg.

Sir,—As President of the Pharmacentical Society of the Transvaal, I have just had a communication from London requesting information as to the status of our Society and of chemists generally nnder British rule, and hoping that all the pharmacy laws wonld be the same in all the South African Colonies.

The old Medical Law of the Z.A.R., under which we are still working, was made in 1884, when there were few, if any, chemists in the country, and was intended entirely for medical men, giving chemists no rights whatever. For instance, we cannot sell 6*d.* worth of carbolic acid—a poison—without a medical man's prescription or an order from the Landdrost, the law sayiug distinctly that we cannot sell poisons without such an order. Of course such a law is broken every day. Again, a chemist may take out two or more licences for different shops, pntting unqnalified assistants in charge of them, to the danger of the public health, and certain chemists in this town—for a consideration—used to cover those who knew nothing of medicine.

Various other items also require rectifying, and we as a Society for the last seven years have interviewed State Secretaries Leyds and Reitz to get the present law altered, bnt without effect. What we want in this Colony is the Cape Pharmacy Act, with a Pharmacy Board the same as at Cape Town and I would consider it a splendid thing if we had one law for the whole of South Africa.

The Cape Pharmacy Act being based on the home Pharmacy Act, it would be of immense importance, especially to people at home, should they be coming South, if registration, say, in the Cape Colony were connected with the other Colonies so that the one registration wonld do for the whole lot. There is no reason why this shonld not be done, and the same staudard of qualification for examination be adopted. This would not do away with Colonial Boards, for there could be one for each just as there is

an Examining Board in London and another in Edinburgh, besides delegates from each Board could meet every year or two years to discuss matters and regulations.

Trusting you will give this matter your kind consideration,
I have the honour to be, Sir,
Your obedient servant,
(Signed) Robt. Butters, President.

In answer to the above letter we received the following reply:—

High Commissioner's Office,
Johannesburg, May 3, 1901.

Sir,—I have to inform you, with reference to your letter of the 23rd ultimo, that, while it would seem desirable to eventually introduce into the Transvaal an Act similar to the Pharmacy Act of the Cape Colony, the time is not yet ripe for legislation on the subject. The matter, however, will be dealt with in due course.

I am, Sir,
Your obedient servant,
(Signed) H. D. Ommanney,
Secretary to the High Commissioner's Permits.

On January 6, 1902, hearing from Pretoria that the Administration were seeking certain information, we again wrote as follows:—

Box 466, Johannesburg, February 19, 1902.
To his Excellency Lord Milner, High Commissioner,
Administrator of the Transvaal.

My Lord,—We beg to approach you regarding the Pharmacy Law, as referred to in our letter dated April 23, 1901. We learn that the Administration at Pretoria is inquiring for information on this subject, and we, as a Society representing 80 per cent. of the whole registered chemists of the Transvaal, should be pleased to afford the authorities any information or assistance in our power.

We have the honour to be,
Your Lordship's obedient servants,
(Signed) Robert Butters, President.
(Signed) A. S. Smith, Secretary.

To this letter we merely received an acknowledgment.

You can quite understand that the Society has really been at a standstill during the last three years, and nothing further could be done, but your committee consider that now is the time to push forward our claim for a new Pharmacy Act, and that we ought to send a deputation to interview the Administration on the matter at an early date.

Mr. A. S. Smith (Hon. Secretary and Treasurer) reports the financial condition of the Society as being satisfactory, but draws attention to the fact that because of the past troubled times very few subscriptions have been collected. In view of the fact, however, that the Society early anticipates an increased expenditure, along with a much more extended sphere of usefulness, he urges the necessity of members sending in their subscriptions at once.

The President, in moving the adoption of the report, referred to the interviews with the late Transvaal Government, and said they must make an effort to get the present Government to do something for them as a society. He fully thought when the deputation waited upon Mr. Reitz that he would have done something for them, but they had been disappointed, and he thought the best thing they could do now would be to arrange another deputation to see if they could not obtain a new law. Until they got that they were in a very awkward position. Practically they were breaking the old law every day, and it was possible for them to be brought up for selling a common article like carbolic acid, although, of course, he did not think the authorities would actually prosecute anyone, for the reason that the facts had been pointed out to them. The position was a false one, and it behoved them to take steps for putting them on a proper footing as early as possible.

Mr. R. Butters.

The report was adopted.

A member asked when

The Title of the Society

had been altered, as at their last meeting it was known as the Pharmaceutical Society of the South African Republic.

The President intimated that the name had not been formally changed, but under the new state of affairs, there being no longer a South African Republic, he and the Secretary had adopted the new title for the time being.

Mr. Purnell (Lennon, Limited) formally moved that the name of the Society be changed to read "Transvaal Pharmaceutical Society."

The motion was seconded, and carried unanimously.

New Rules.

A discussion, in which several of the members took part, followed as to the alteration of the rules of the Society, chiefly with regard to the qualification of members and associates. It was finally agreed, on the motion of Mr. Purnell, seconded by Mr. Dinwoodie, that an extraordinary general meeting be called a month hence to adopt new rules, to be drafted in the meantime by the committee, the draft to be sent to individual members before the meeting, so that they might have an opportunity of reading them over and suggesting amendments, if necessary.

Election of Officers.

The new committee was elected as follows: President, Mr. R. Butters (re-elected); Vice-President, Mr. Thomas; Hon. Secretary and Treasurer, Mr. A. Purnell (Lennon, Limited); committee, Messrs. Dinwoodie, A. Rennic, Adams, Martlew, and A. S. Smith (for Johannesburg). It was agreed that members of committee from other districts should be elected at a later date.

The Retiring Hon. Secretary.

Mr. A. S. Smith, in retiring from the position of Hon. Secretary, said he had formed the impression during the time he had acted as their Secretary that there was a great future for the Society if the members held together. Amongst their members were qualified men from all the corners of the world, and by united effort he thought a great deal could be done. They had been working under many difficulties, and had invariably, in their efforts to effect legislation, been snubbed by the powers at Pretoria, or met with rebuffs. That time was past, and under the British Government he was sure the Society would achieve its proper sphere of work. In a short time he hoped they would have their own Examining Board, and be given powers to say whether a man shall practise as a chemist in the country or not—in fact, similar powers to those possessed by the Pharmaceutical Society of Great Britain. It should be their great aim to stand by the Society, and if they pulled together he was sure there were days of great prosperity for them in the future. (Applause.)

The President announced that the next meeting would be held in a month, to consider the new rules and elect a committee to interview Lord Milner concerning the new pharmacy law.

On the motion of Mr. A. S. Smith it was decided that a dinner be held in the near future, the date to be left to the Committee of Arrangement.

This terminated the public business.

Cape Colony Pharmacy Act.—Lallaran Dooney was before the A.R.M., at Cape Town, on August 11, charged with contravening Section 34 of Act 34, 1891, by having falsely used the title of doctor of medicine, implying that he was entitled to and qualified to practise as such. The police conducted the prosecution. The accused is a palmist, and from the evidence it would appear that most of his patients consulted him as to their fortunes in the first place Dooney was found guilty, and sentenced to pay a fine of 30*l.*, or, in default, to undergo three months' imprisonment.

Colonial and Foreign News.

Trade-marks in Honduras.—The American Consul at Puerto Cortes states that the Apollinaris Company of Germany made application last February for registry of trade-mark for its mineral waters. The result of the petition is a decree by which manufacturers can now protect their products against imitations in Honduras.

Electro-chemical Industry in Russia.—There are as yet very few special electro-chemical works in Russia; one factory near the Imatra rapids in the Caucasus produces carbide of calcium, and other works for a similar purpose also exist. A large electro-chemical factory has been erected in the government of Kharkof for the production of caustic soda and bleaching-powder.

Patent-medicine Duties in Costa Rica.—The Board of Trade have received copy of a decree of the President of Costa Rica, which came into force on August 1, containing a revised list of the Customs duties leviable on patent medicines imported into the Republic. The list may be seen on application at the Commercial Intelligence Branch of the Board of Trade, 50 Parliament Street, S.W.

Compressed Drinks.—A compressed-spirits company, with a capital stock of $1,000,000, is being formed at Binghamton, New York. Mr. I. Z. Protzman, an hotel proprietor, of Cincinnati, is president, and the stockholders include financiers in New York and Baltimore. The factory will turn out whisky and wine in compressed tablets, the invention of Mr. Charles Obendaugh, of this city. The work of establishing the plant will begin at once, and drinks in a compressed form will be on the market before Christmas.

Sicilian Sumach.—The sumach grinders and merchants of Palermo endeavoured some two years ago to form a combination for their mutual benefit in the disposal of this product. All the grinders did not join the association, and those who remained outside got the advantage of the better prices resulting from the syndicate. Since then it appears that considerable quantities of sumach have been dealt with by the "outsiders." Recently renewed efforts were made to endeavour to bring about a complete combination, but so far these efforts have failed. In 1901, 34,183 tons were shipped from Palermo, against 30,155 tons in 1900; of this quantity 34,183 tons were shipped to the United Kingdom, against 22,206 tons in 1900.

Canadian Wholesale Druggists' Association.—The annual meeting of this Association was held at Halifax, N.S., on August 11. The officers for the ensuing year were elected as follows:—Hon. President, Mr. H. Lyman (Montreal), President, Mr. W. S. Kerry (Montreal); Vice-Presidents, Messrs. F. C. Simson (Halifax), T. M. Henderson (Vancouver), and G. H. Clarkson (Toronto); Secretary, Mr. W. Mattison (London); Treasurer, Mr. W. S. Elliott (Toronto); Board of Management, Messrs. C. McD. Hay (Toronto), A. Lyman (Montreal), C. W. Tingling (Hamilton), J. W. Knox (Montreal), H. W. Barker (St. John), W. Skinner (Kingston), and D. W. Bole (Winnipeg); Executive Committee, Messrs. C. McD. Hay, G. H. Parkson, W. S. Elliott, C. W. Tingling, Wm. Mattison. The next place of meeting will be Toronto.

Analysis in Jamaica.—The annual report of the Government analytical and agricultural chemist of Jamaica, Mr. Cousins, states that during the year ended March 31, 1902, 560 samples (as against 204 in the previous year) were dealt with in the Government Laboratory. The number of cases of morphine-poisoning during the year was remarkable. The Dragendorff process of quantitative estimation was found unreliable in these cases when decomposition had taken place, and a new method of estimation under such conditions is being investigated. Phosphorus was employed in seven instances as a means of poisoning articles of food and drink. A brilliant-red growth of *Prodigiosus* on grated cocoanut led to a complaint of attempted poisoning in one case. The work on soils has been the chief item during the year. So far the soils exhibit a high standard of fertility—phosphoric acid being peculiarly rich in most cases. Minerals are frequently sent for examination, but are rarely worth an assay.

Marriages.

Price—Shrimpton.—On August 21, at Angel Street Congregational Church, Worcester, Walter William Price, chemist and druggist, Kidderminster, to Edith, eldest daughter of Mr. F. Shrimpton, of Worcester.

Wardleworth—Scott.—On August 30, at the Garston Congregational Church, by the Rev. T. Cole, assisted by the Rev. R. J. Wardell, Theophilus Hatton Wardleworth, F.L.S., of Liscard (with the firm of Messrs. Evans, Sons, & Co.), son of the late Dr. Wardleworth, to Eleanor Annesley (Ella), third daughter of David Scott, of Cressington Park, Liverpool.

Deaths.

Moss.—At 39 Tressilian Road, St. John's, London, S.E., on September 2, Mr. John Moss, F.I.C., F.C.S., pharmaceutical chemist. Aged 57. The brief note which we printed last week regarding Mr. Moss's illness indicated its fatal nature. Mr. Moss had been complaining all this year,

and three or four months ago he took special medical advice, when it was ascertained that Bright's disease had set in. Under treatment the trouble was checked, and there was some hope, but a fortnight ago uræmia set in; he gradually became unconscious, and died on Tuesday morning at half-past 8. Mr. Moss was born at Oldham, where he was apprenticed with Mr. Hulme. On August 5, 1868, Mr. Moss was awarded the senior Bell scholarship after a session in the School of Pharmacy, where he had done well, taking the medals in chemistry and pharmacy, and botany and materia medica. On the occasion of the prize-distribution Professor Bentley said Mr. Moss's answers were equal to any he had ever had during his twenty years' experience. He had passed the Minor with honours in February, 1868, and on June 17 of the same year passed the Major examination in honours, on the same day as Mr. F. H. Lescher. He remained in the School as assistant demonstrator to Professor Attfield, when Dr. Tilden was demonstrator. He succeeded Dr. Tilden as demonstrator in 1872, and continued this work until 1873, being highly esteemed by his chief, who, writing to us, says of him, "He was ever loyal to the Society, to the school, to his teachers, to his colleagues. For thirty years he has been one of the warmest and most trusted of my pharmaceutical friends." Mr. Moss left the Square to take charge of Messrs. Corbyn, Stacey & Co.'s laboratories. He was appointed a member of the Pharmaceutical Board of Examiners in 1874, a time when most of the examiners were (as we remarked in 1876) "comparatively young men, with plenty of energy left in them." The quarter of a century which has since elapsed gives peculiar interest to the composition of

the Board as it was then. "Messrs. Carteighe, Gale, Moss, and Umney," we explained, "are generally told off for chemistry, Messrs. Allchin and Linford are placed at the materia-medica tables, botany is the speciality of Messrs. Corder and Southall, practical dispensing is tested by Messrs. Haselden and Taylor, while Messrs. Barnes, Benger, Martindale, and Schweitzer divide the investigation into the ability of the candidates to read prescriptions, and into their acquaintance with pharmacy." Mr. Moss was the youngest member of the Board. He had proved his ability as an investigator before this on such subjects as chaulmugra oil, and curari. He remained on the Board until his resignation was determined by his acceptance of the managership of the Zoedone Company (Limited). Zoedone was a phosphatic aërated beverage which enjoyed a phenomenal success at the end of the seventies and beginning of the eighties. It was patented by Mr. David Johnson, F.C.S., on December 13, 1877, and gained distinction at the Paris exhibition in the following year, when it was introduced commercially by Messrs. Evans & Co., of Wrexham. Mr. Moss's connection with it arose through his work in perfecting the beverage, and when, in 1880, Mr. Johnson sold his patent-rights to the Zoedone Company for 35,000*l.* in paid-up shares (the capital of the company being 100,000*l.*), Mr. Moss was appointed manager. For several years an enormous business was done, extensive works being erected at Wrexham, and 250 hands employed in making Zoedone. A profit of over 7,500*l.* was made in 1882, and there were subsidiary companies in India, France, the United States, and elsewhere. At the end of June, 1883, Mr. Moss resigned the managership to return to the wholesale drug-trade as a partner with Messrs. Harker and Stagg. By this time the Zoedone Company was working at a loss, and it never regained its prosperity. Mr. Moss remained in Laurence Pountney Lane until 1887, when he started business for himself as a manufacturer of galenicals at Wilson Street, Deptford. Ten years later the business was converted under the title Galen Manufacturing Company (Limited). He had meanwhile purchased the antiseptic-dressings business of the late Mr. John Milne, and his son, Mr. Harold Moss, took charge of it. Latterly this business was transferred to Wilson Street, and Mr. Moss abandoned the manufacture of galenicals; indeed, he had for some years left the management of his business so much in Mr. Harold Moss's hands that he was able to take greater leisure. Mr. Moss was a capable pharmacist, and had the knack of identifying himself with new drugs; thus his investigations on cascara sagrada placed our galenical knowledge of that drug on a sound basis, beyond which we have advanced little since he dropped the subject. He had been connected with the Pharmaceutical Society for nearly forty years, and was also a loyal member of the British Pharmaceutical Conference, which he had served on Committee, also as Hon. Treasurer (1893–98), and Vice-President (1899–1900). He was elected a Fellow of the Chemical Society in 1871, and of the Institute of Chemistry in 1878. Mr. Moss was very happily married, and Mrs. Moss and their two sons and two married daughters survive him. The funeral is to take place to-day (Saturday) at 1 o'clock at Brockley Cemetery.

Pears.—On August 30, suddenly, of heart-failure, Andrew Pears, the beloved second son of Andrew and Marian Pears, of Spring Grove, Isleworth. In his 30th year. Mr. Pears a week ago returned from Scotland, and on Friday afternoon last he left the factory of Messrs. A. & F. Pears (Limited), where he was the chemist, in his usual health. On Saturday morning he was found dead in bed. At the inquest on Monday the medical evidence showed that death was due to syncope, resulting from valvular disease of the heart, and the jury returned a verdict of death from natural causes. They were joined by the Coroner in an expression of sympathy with the deceased's relatives. One who knew him well writes: "Young Pears, or 'Drew,' the name by which he allowed his intimates to call him, was a general favourite. Whatever his chemical knowledge outside its application to his business may have been, it was ample for that purpose; and there is good reason to believe that in recent years the famous soap has improved under his supervision of the processes of manufacture. But the memory of his charming personality will not soon pass from the minds of those who knew him at the games and sports he loved so well. He was a keen but generous opponent, desirous always of being courteous, and wishful to be well thought of without surrendering his rights or his independence. Perhaps he knew he carried with him a cause of early death. If so, he kept his secret bravely. He was betrothed on a Thursday and dead on the Saturday following. Altogether a good and honest Englishman has gone to his rest. His funeral at Isleworth on Tuesday drew together, without special invitation, a large representation of his personal friends, and numerous wreaths witnessed to the grief with which they saw him laid to rest."

Porter-Smith.—On August 20, Priscilla Louisa Porter-Smith, widow of the late Dr. F. Porter-Smith, of Shepton Mallet (author of "Contributions towards the Materia Medica and Natural History of China"), and daughter of the late James Quelch, of St. Kitts, W.I. Aged 59.

Woods.—On August 31, at Harleston, Norfolk, Mr. Charles Woods, chemist and druggist, who had for many years carried on an old-established business in the Thoroughfare. Mr. Woods, who was 58 years of age, had been in ill-health for about three months, and latterly had been confined to his bed with a painful malady. He has left a widow and family.

Personalities.

Mr. E. Wightman Bell, F.C.S., of Spalding, asks us to state, *re* note on page 378, that he is not a pharmaceutical chemist, but a chemist and druggist.

A Marriage has been arranged between George, second son of the late Mr. J. Lawson Johnston and Mrs. Lawson Johnston, and Edith Laura, fifth daughter of the sixteenth Lord St. John, of Bletsoe.

Mr. Nicholas E. Browne, chemist, and a Justice of the Peace at Freetown, Sierra Leone, after an absence of two years, has returned to this country on a second visit, which will extend into the New Year.

A Marriage has been arranged between Mr. Jno. H. Smith, pharmaceutical chemist, of Messrs. Jno. H. Smith & Co., Newark-on-Trent, and Miss Alice Jane Hickson, second daughter of Mr. Thos. Hickson, of the Manor, Kilvington, Notts.

Mr. Andrew Kidd, chemist and druggist, formerly of Dundee, who went out to South Africa about eight years ago, has come home on a health-trip. Mr. Kidd will be in London on September 8, and letters may be addressed to him at the offices of The Chemist and Druggist.

Mr. T. H. W. Idris, President of the British Pharmaceutical Conference, has just fought with success a stiff contest for the East Pancras seat on the London County Council, vacant through the death of Mr. Nathan Robinson. The polling took place last Saturday, when Mr. Idris got 2,490 votes, and Mr. Edmund Barnes, his opponent, polled 1,865. Mr. Idris was on the Council until March, 1901, when he retired. For years he was Chairman of the Water Committee, and a forward policy in regard to water-supply was one of the points he won the election on.

Apropos of the contest a "Member of the B.P.C." (57/36), sends us the following verses:—

Come fill up your cup, come fill up your can!
Here's honour, good luck, and long life to the man
Selected, in conclave, at Bonnie Dundee
To "boss" all our meetings in 19-nought-3!

Then drink once again! as south of the Tweed
He is sheathing his sword in triumph indeed!
For, with Barnes at East Pancras, he has fought and is free,
So hurrah! for the victor!—our Idris C.C.

There is a Pharmaceutical Writer in U.S.A. who amuses himself and makes money by contributing practical papers to a drug journal on corns and things. Much of his information is ingeniously recast from "Pharmaceutical Formulas," which has quite a large sale in the United States through Messrs. McKesson & Robbins, New York. Their price for it is is "two dollars fifty."

Exeter Association of Chemists and Druggists.

A MEETING of this Association was held in the Exeter Guildhall on August 28, to hear an address from Mr. W. S. Glyn-Jones on the Proprietary Articles Trade Association, the Chemists' Defence Association, and the Drug-trade Appeal Fund. In the absence of the President (Mr. G. Stocker) through ill-health, the Vice-President (Mr. E. Lemmon) presided. The Hon. Secretary reported that as a result of the recent conference betwcen the authorities of the Royal Albert Memorial College and the members of that Association, it had been decided to continue the pharmacy classes at the College. The prospectus would shortly be issued, and it would greatly facilitate the arranging of the classes for the coming session if intending students would give in their names as soon as possible. Mr. Glyn-Jones then addressed the meeting on the subjects he knows so well. In the course of his remarks on the Drug-trade Appeal Fund, he said the support already forthcoming insured that before many weeks had passed the 1,000*l.* aimed at would be in hand. They had between 550*l.* and 600*l.* promised, the bulk of it by manufacturing and wholesale firms, and he imagined they might reasonably expect twice that amount from the retail trade. Mr. T. C. Milton asked if the Chemists' Defence Association and the Drug-trade Appeal Fund were combined organisations. Mr. Glyn-Jones replied in the negative. The Drug-trade Appeal Fund was a separate organisation, and the money subscribed would be put into the hands of trustees. The membership of the Chemists' Defence Association was confined to retail chemists, but the Drug-trade Appeal Fund was a matter which applied to the wholesale trade also. The Drug-trade Appeal Fund would be available for deciding points of law, whether they arose in connection with the Chemists' Defence Association or not. Mr. Milton expressed great satisfaction with Mr. Glyn-Jones's speech. He was one of those who, six years ago, became subscribers to the P.A.T.A., and it had been much more effective than he anticipated. He moved—

That the Exeter Association of Chemists and Druggists cordially approves of the work of the P.A.T.A. and Chemists' Defence Association, and undertakes to organise a local subscription on behalf of the Drug-trade Appeal Fund.

Mr. H. Gadd, J.P., seconded. He had studied the Pharmacy Acts very carefully, but he must plead guilty to ignorance on many points, and Mr. Glyn-Jones's paper on the poison law had enlightened him considerably. It was a marvellous thing that the Pharmaceutical Society allowed certain powers to remain undiscovered for thirty-five years. In regard to the indemnity, was it meant that the Chemists' Defence Fund would give more than one indemnity in a year? Mr. Glyn-Jones: We limit our responsibility to 500*l.*, however many persons a member may kill. Mr. Gadd said the Appeal Fund was especially valuable, and he looked very hopefully to the position of the P.A.T.A. He was glad to find that one important article—Woodcock's wind-pills—had come in. That one article alone made a difference of 2½ per cent. in the wholesale, and would make an equal difference in the retail. He believed that soon proprietors would come in with a rush. Mr. D. Reid supported the resolution, which was carried unanimously, and a hearty vote of thanks was passed to Mr. Glyn-Jones for his address and to the Mayor of Exeter for the use of the Guildhall.

New Books.

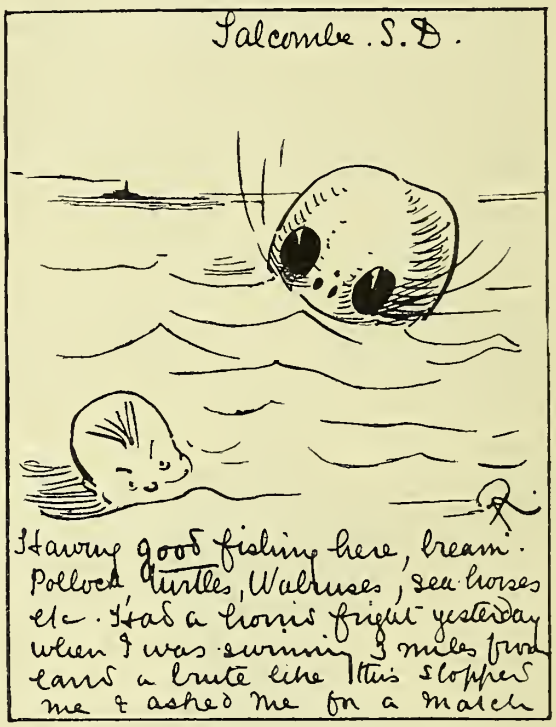
Moor, C. G. *Suggested Standards of Purity for Foods and Drugs.* Cr. 8vo. Pp. 760. 7*s.* 6*d.* net. (Baillière.)

Stewart, R. W., Don, J. *Matriculation Physics: Heat, Light, and Sound.* 7⅛ × 4¾. Pp. 418. 4*s.* 6*d.* (Clive.)

Thompson, C. J. S. *Aids to Practical Dispensing.* Illus. 8vo. Pp. 100. 2*s.* 6*d.* cloth, 2*s.* paper cover. [A hand-book designed to help students who have not the opportunity of much practice in necessary dispensing-processes. A cursory examination shows that no new ground has been covered. The appendix contains methods of making poultices, and the new regulations for the storage of poisons.] (Baillière.)

Things that happen—Sometimes.

At the Seaside.



Trade-marks Applied For.

Objections to the registration of any of the undermentioned applications should be lodged with C. N. Dalton, Esq., C.B., Comptroller-General of Patents, Designs, and Trade-marks, at the Patent Office, 25 Southampton Buildings, Chancery Lane, London, W.C., within one month of the dates mentioned. The objection must be stated on Trade-marks Form J, cost £1, obtainable through any money-order office.

(*From the "Trade-Marks Journal," August* 27, 1902.)

"Mykrol," aud device; for disinfectants and dips. By the Bone Phosphate and Chemical Company (Limited), Flint, N. Wales. 246,539.

"Pinetic" (no claim for "Pine"); for disinfectants. By James Boulton & Co. (Limited), Stratford, E. 246,848.

"Solyptol"; for disinfectants. By F. H. Faulding & Co., Adelaide, S. Australia, c/o G. T. Hyde, 1 Broad Street Buildings, E.C. 247,649.

Picture of two naked boys carrying a tub; for soaps in Classes 2 and 46. By the Health Soap Company (Limited), Brookhill Road, Bootle, Lancs. 247,682, 247,683.

Facsimile signature (the essential particular) and the word "Phenacetin"; for a chemical. By J. D. Riedel, Berlin, c/o Mewburn, Ellis & Prior, 70 Chancery Lane, W.C. 246,778.

"Relevol" (no claim for "Relieve"); for goods iu Class 3. By J. J. Snow, 71 Westbury Road, Walthamstow. 247,584.

Combination of bull's head and other devices and the words "Bull's Head"; for mustard. By J. & J. Colman (Limited), 108 Cannon Street, E.C. 246,933.

"Humanoid" (no claim for "Humano"); for foods. By the Aylesbury Dairy Company (Limited), 31 St. Petersburg Place, Bayswater, W. 247,014.

"Chlorinol" (no claim for "Chlorine"); for a liquid bleach. By Phillips, Smith & Co., 93 Hope Street, Glasgow. 247,520.

Observations and Reflections.

By Xrayser.

The Sale of Poisons

"is a source of much worry and little profit.' That is what Mr. Glyn-Jones, Delegate of the Pharmaceutical Society of Great Britain, told the Royal Institute of Public Health. And if it were not for the distinction which it gave to the shop of the qualified chemist over that of the unqualified vendor of drugs, and barring dispensing, chemists, he added, would prefer to be without the business. Mr. Rowsell, of Exeter, expressed agreement with this view, and I have often heard the same sort of thing said by other chemists. But when this opinion is pronounced not only as that of the Pharmaceutical Society, but as that of chemists generally, I am a little inclined to protest. It is true that Mr. Glyn-Jones reserves from his denunciation the tit-bit of pharmacy which monopoly in the sale of poisons gives him, for he knows no one could dispense three consecutive prescriptions if he might not sell poisons, and he is also glad of the glory which the law allows him. He wants to pick the plums from the cake; but what is the matter with the rest of the business? It is not much worry to sell two or three dozen pennyworths of white precipitate a week, or to supply the poisonous proprietary medicines asked for, especially when these are on the P.A.T.A. list. The poison-book comes into play when vermin-killers, sheep-dips, and some photographic chemicals are wanted, but to a scholar like a chemist even this ought not to occasion much worry. Frankly, I for one am glad of the poison-trade. "It's not much, but it's our own," and I am thankful to the Parliament which bestowed it upon us.

The Pharmaceutical Society

of all bodies has every reason to cherish respectfully and affectionately the sale of poisons. The Legislature had no sentimental views about pharmacy in 1868, but it very much wanted to hedge around and limit the trade in deadly poisons. For this purpose it was necessary to find persons who had proved their competence. The Pharmaceutical Society had all the requisite machinery ready, and hence, and hence only, their examinations and certificates secured official recognition.

Danval,

the pardoned convict and one-time Paris pharmacien seems to have acquired some curious notions in New Caledonia. He is reported to have said that he was always well treated out there. "If I had not felt the feeling of revolt of an innocent man unjustly condemned, my existence would have been very bearable. Guilty, I should certainly have been happy enough." Danval, it will be remembered, was convicted of having murdered his wife. The friends of Socrates condoled with him on having to die an undeserved death. "Would you have wished that I had deserved it?" asked the sage.

Mr. Andrew Lang,

in *Longman's Magazine*, quotes Sir Lauder Brunton as conjecturing that if Mahomet had taken "a good firm dose of bromide" he might not have had the visions which resulted in his doctrine and mission. On the same reasoning Mr. Lang assumes that bromide might have prevented the conversion of St. Paul, drowned the "voices" of Joan of Arc, and saved the world from Socrates, Cromwell, Julius Cæsar, Napoleon, and many others. Mr. Lang would not have been sorry if Mahomet and Napoleon had been bromidised within an inch of their lives, these great disturbers not being on his side; but he lingers with evident enjoyment on the reflection that, with enough bromide, history could have been turned upside down.

Bromide, then,

according to Sir Lauder Brunton, interpreted by Mr. Lang, is the medicine for a mind diseased, which Macbeth so scornfully challenged his doctor to supply. But have we no drug which will create the condition which bromide will cure? Oh, that homœopathy could be relied upon in this matter! If only we could produce Mahomets and Cæsars by a few infinitesimal doses of this physic! Another Joan of Arc might be much needed in the future, and circumstances might possibly arise when another Cromwell might come in useful. If Sir Lauder Brunton, before he joins the select party mentioned, would work out a prescription for such reformers, he would do the world good service.

Mr. Broadhead's Contribution

to the titles debate is smart but not useful. It would be quite as easy for any of us as it is for Mr. Broadhead to make out a strong case against companies run by unqualified persons using the title which the Pharmacy Act reserved to specified persons. It is anomalous, absurd, and unjust that they should be allowed to do so. But the question which level-headed people have to consider is, Is it illegal? Mr. Broadhead will no doubt concede that it would not have been illegal for companies to designate themselves "chemists and druggists" before 1868, but he would say this was altered by the Pharmacy Act passed that year. Unfortunately, the Judges of the Court of Appeal and the Judges of the House of Lords said this was not so. Companies, they said, had not been legislated for in that Act; consequently they could keep open shop for the sale of poisons, and use titles as freely as they might before the Act.

An Unjustifiable Conclusion,

say some, Mr. Broadhead among them, perhaps. So be it. But if a million Mr. Broadheads held this view it would not make a scrap of difference. It happens that it is the Judges hereinbefore mentioned who are the authorised interpreters of Acts of Parliament, and there is nothing for us to do, if we do not like their decisions, except to go to Parliament and get our grievances remedied by a new Act. No one who has studied the subject carefully can dispute the sound basis on which the Law Lords formed their opinion. It is a fact that when the Pharmacy Bill was under discussion in Parliament no allusion of any kind was made to companies or co-operative societies who might wish to run a "drug-department." If subsequent developments had been foreseen it is very probable that some mention of the difficulty would have been made. In that case is it certain that Parliament would have decreed that pharmacy could never be worked by a company?

The Logical Value

of Mr. Broadhead's arguments may be gauged by his discovery that "if companies which are outside the Pharmacy Act cannot use their titles, neither can dead-and-gone pharmacists who are outside this world altogether." This witticism apparently applies to pharmacists who retain the use of a valuable trade-name. There is no analogy whatever between the cases. The complaint against companies is that they, being unqualified, use a title which implies that they are qualified. A qualified chemist who trades under some other name than his own may or may not infringe the Act, but his offence, if it be one, is at any rate quite different from that alleged against companies.

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Editorial Comments.

Qualification.

THE struggle for advancement in education of a technical nature has not been so keen during the past year; indeed, the tendency has rather been the other way. The General Medical Council has had to consider seriously attempts on the part of a leading medical licensing body to abbreviate the professional curriculum, and the University of London has weakened the stringency of its matriculation examination and widened its basis. It is felt in a few influential quarters that the tendency of the closing generation has been towards super-education, but catholic-minded men think this view incorrect, and explain that the tendency has rather been to carry examination-tests beyond the requirements of the practitioners. In some cases qualifying examinations have too little relation to the business they deal with. The latter consideration has a special application to pharmacy. In those circles which take an interest in pharmaceutical education, two questions chiefly have been discussed during the year—one Mr. Tocher's scheme for providing a degree in pharmacy through the Scottish Universities, and the other, Does the Minor examination not unfit many candidates for the business in which they have been trained? These obviously

indicate opposite poles. There is a branch of pharmacy, common in Scotland and to several cities and towns on this side of the border, as well as to historic houses and West-end chemists generally, in which the qualifications resulting from a scientific training are called into play during the pharmacist's daily duties. To such cases Mr. Tocher's scheme especially applies; but by far the greater proportion of the pharmacy business conducted in Great Britain is not of that character, and men trained in it reach the schools of pharmacy after apprenticeship *minus* the experience obtainable in the higher-class pharmacies, and they have to be worked up to that standard before they obtain their statutory qualification. After that they return to their old walks in life, better, indeed, for the comparative modicum of science they have secured, but it bears little more relation to their business than it did before they got it. Should this apparent waste continue? Is there no means by which the Pharmaceutical Society, as the governing body, can gradually make trade requirements comparable with the examination standard? Here the absence of powers in regard to a real apprenticeship is a formidable difficulty. Contrast the position in Great Britain with that in Canada, which is graphically sketched in a subsequent article. Here the Pharmaceutical Society's powers are of the flimsiest character, and the most has been made of them by imposing a minimum interval of three months between registration as an apprentice and entrance for the Qualifying examination (this being an office convenience rather than a qualification necessity), and the certificate of three years' experience in dispensing medical prescriptions is on a level with the birth certificate. The Ontario licensing body has such an arrangement that it, in a sense, apprentices the youth when he has passed his Preliminary examination, advises him about his studies during apprenticeship (which must be with a pharmacist), and provides him with courses of study thereafter upon which the examinations are based. There are in this some of the elements we lack, especially the provision, as far as it can be done legally, of a supervised apprenticeship and a graduated course of reading during that period, while in the examinations there is particular care to adhere to what is good for pharmacy, the whole being with a view to ensuring that the licentiate is equipped to efficiently perform his statutory duties. Sooner or later some change will have to be made in this country. The present system is wasteful, and under it unregistered practitioners are growing in number. They have the qualification to compete with the men who are qualified by law, and are a menace to the integrity of the whole body. A curriculum in science is certainly not the remedy, nor do we get guidance from the contemplation of the happy lot of the German apotheker and the French pharmacien; but Greater Britain has in it methods of success which may be studied, probably adopted, and it is with that view that we print the article referred to.

Our Inland Revenue.

THE forty-ninth report of the Inland-revenue Commissioners shows that 103,818,452*l.* was collected in the year ending March 31, 1902. This sum is made up as follows:—

	£
Inland Revenue	94,851,833
Customs	6,537,025
Post Office	2,429,594
	103,818,452

The amount attributed to the Customs is not the total collected by that department, and the same remark applies to the Post-office figures; these are what the Inland-revenue authorities collect as agents, so to speak. To collect the amount noted under the head Inland Revenue *plus* some four millions collected for other departments, it costs the State over two and a quarter million pounds. This works out at 2·28 per cent. of the gross amount, a smaller percentage than ever before. When the department only collected thirty-three millions some fifty-four years ago the cost was 4·42 per cent. The Excise-duties account for 36,855,728*l.* of the Inland Revenue collected, beer and spirit duties being over thirty-two millions. The estimated consumption of beer per head of the population of the United Kingdom works out at 30·66 gals., and of spirits 1·01 proof gal. A larger number of gallons of spirit was methylated than in any previous year, and 4,640,770 proof gals. of the total 5,268,180 was home-made spirit. Licences for the sale of methylated spirit were issued to 16,004 persons, and produced the net amount of 7,868*l.* to the Exchequer. There are thirty-four makers of methylated spirit in the United Kingdom, yielding 343*l.* to the Revenue. There were issued 193 still-licences to chemists, whilst 35,364 persons have permission to make and sell "patent" medicines in England and Scotland. Stamp-duties produced 7,772,423*l.* during the year ending March 31, a decrease of 114,434*l.* as compared with the previous year. The decrease is attributable mainly to the falling-off in the receipt from the companies' capital duty. Medicine-stamp duty, included in the above, continues to increase. The net receipt of revenue from this source was 306,337*l.* (304,195*l.* England, 2,142*l.* Scotland), or 8,857*l.* more than in the previous year, but still a long way off the increase in the period 1898–9, when the revenue was 288,827*l.*, or 22,423*l.* more than in the year preceding. Taking the 1½*d.* stamp as the basis, it appears that during the last financial year stamped medicines to the value of 2,450,696*l.* (*i.e.*, at the cut rate of 1*s.*) were sold, and as the population of the United Kingdom is 41,544,000, it follows that each person spends 1*s.* 2½*d.* annually on proprietary medicines, but this takes no account of the exported medicines, many of which are stamped. It takes hard work to get in that 1*s.* 2½*d.* When one thinks of the lavish expenditure by Beecham, Elliman, Carter, Davenport, Holloway, Williams, Seigel, and other leading proprietary-medicine manufacturers, not forgetting thousands of stamped articles of less popularity, it is surprising that the yield is only about 2⅓ millions. As usual the income-tax returns furnish some interesting particulars of income, which are well summarised in the following table, which gives the gross amount of income under Schedule D only in 1900–1:—

	England	Scotland	Ireland
	£	£	£
Persons	106,047,925	11,414,483	4,728,324
Firms	75,314,254	12,703,464	1,478,919
Public companies ...	191,562,808	22,306,972	5,927,176
Local authorities ...	11,513,369	1,722,207	397,660
Agents and bankers ...	20,463,670	502,666	105,939
Total	404,902,026	48,649,792	12,638,018

Income-tax, collected on 833,355,513*l.* (all schedules), produced 35,378,700*l.* Inhabited-house duty yielded 1,726,676*l.*, an increase of 25,591*l.* on the previous year, the residential shops accounting for 293,821*l.*

The American Jubilee.

OUR American *confrères* are preparing—indeed, the preparations are complete—for the celebration of the fiftieth anniversary of the American Pharmaceutical Association. The ordinary annual meeting of the Association opens in the Hotel Walton, Philadelphia, on Monday next, September 8,

under the presidency of Dr. H. M. Whelpley, of St. Louis, a pharmaceutical journalist and most active man of affairs. On the Thursday the jubilee celebration takes place in the fine hall of the Philadelphia College of Pharmacy, and there Dr. Fr. Hoffmann, of Berlin, who for many years conducted the *Pharmaceutische Rundschau* of New York, will preside and give an oration of historical interest. It is curious that in so important an event as this the two leaders should be taken from the journalistic ranks, and it is the fact that such gentlemen play and have played leading parts in the progress of American pharmacy. It need scarcely be pointed out that the American Pharmaceutical Association is anterior to our own similar body, the British Pharmaceutical Conference, which, indeed, is built up on the Association's lines, except that in our case we have not developed so far as to split ourselves up into sections. Perhaps in the near future there may be a fusion which will result in practically the same thing. There is no body in the United States exactly like our Pharmaceutical Societies, the nearest approach to them in functions being the State Boards of Pharmacy; hence there is generally some confusion in the mind of the average American pharmacist regarding, say, the Pharmaceutical Society of Great Britain and the British Pharmaceutical Conference. He, like the average British reporter, takes the Conference to mean an annual meeting of the Society. We shall not venture to anticipate next week's orators in their historical *résumés*. We notice that the *American Druggist* says: "The selection of Philadelphia as a meeting-place is appropriate inasmuch as the first regular meeting of the Association was held in that city. The Philadelphia of 1852 resembled but slightly the Philadelphia of the present time, and nearly all of those who then participated in the meetings of the Association have joined the great majority. It has been said that the Association had its real origin in New York. To this may be answered that while the Association was conceived in New York it was undoubtedly born in Philadelphia." Our contemporary gives interesting details of old Philadelphia pharmacies, some of which seem to have been strikingly English in origin. Thus Professor Remington's great-grandfather, Townsend Speakman, who started in business there in 1771, was born in London, and served his apprenticeship with Thomas Corbyn, in High Holborn; and the business of Powers & Wightman (the Howards of the United States) was founded in 1818 by John Farr, a London apothecary (who has been credited by some as having introduced seidlitz-powders into Philadelphia). Farr associated himself with Abraham Kunzi in the manufacture of chemicals at Arch and Twelfth Streets. In 1822 they moved their laboratory to Fourth and Coates Strect, where they began the manufacture of quinine shortly after its discovery by Pelletier. Later this firm's name was changed to John Farr & Co., then to Farr, Powers & Wightman, and so on. But French and German pharmacists also were associated in the making of Philadelphia pharmacy, and these various factors have given the city a strength in pharmaceutical matters which still remains, and accounts for the catholicity of its interests. The setting for the jubilee is therefore appropriate in more respects than the historical one, and if this country is not taking the share in the celebration it might have done, it is not because we are without interest in American pharmacy and its leading Association

An International Pharmacopœia.

We now seem within measurable distance of getting a practical issue to the thirty-five years' discussion amongst pharmacists regarding an International Pharmacopœia, and not the least remarkable fact in respect to the meeting of international delegates in Brussels on September 15 is that it is the direct outcome of the International Pharmaceutical Congress. At the first meeting of that Congress in 1865 it was decided that uniformity of the formulæ of pharmacopœial galenicals can be obtained in the periodical revision of the various Pharmacopœias, and at the Congress two years later in Paris the idea of an International Pharmacopœia took shape and grew in bulk (spite of much international bickering) until the fifth Congress in London, 1881. Then the English delegates succeeded in convincing their *confrères* from other countries that efforts in this direction should be confined to securing "equalisation of the strength of all potent drugs and their preparations." This narrowed the idea down to a feasible line, and four years later, at the sixth Congress in Brussels, the late Dr. von Waldheim presented a draft International Pharmacopœia. From this it appeared that 232 drugs and preparations had originally been proposed to be incorporated into the Pharmacopœia. Of these, 188 were approved by the Commission, but further propositions from various countries carried the number up to nearly 500 articles. Upon further consideration and voting, 293 articles were accepted and adopted in the draft; of these, 188 were considered as indispensable in a Pharmacopœia, whilst 112 were of less consequeuce. The Pharmacopœia in its entirety was reprinted in The Chemist and Druggist of October 15, 1885. There is now no question that it was much more comprehensive than was requisite, and in this connection we may recall the fact that in our issue of August 15, 1885, we printed what we considered at the time to be sufficient basis for international agreement. Our Pharmacopœia was much smaller than Von Waldheim's, but we still think that it gave the necessary articles, which were aconite, belladonna, cantharides, cannabis indica, colchicum, digitalis, henbane, iodine, ipecacuanha, nux vomica, lobelia, opium, Calabar bean, squill, and savin, with their preparations, besides the dilute acids, arsenical preparations, and mercurial preparations. To these jaborandi and strophanthus would probably now be added. From 1885 until the ninth and last Congress in Paris, 1900, nothing was doue in regard to the International Pharmacopœia, although it is significant that this country (which officially has never been more than lukewarm in regard to international congresses) was the first to carry out the principle of international uniformity, for in the 1885 Pharmacopœia solutions of potent substances were made centesimal preparations—that is, 1 gram of the active substance in 100 c.c. of the finished product. At the Paris Congress Professor Tschirch, of Berne, frankly expressed the opinion that failure in producing an international Pharmacopœia was due to the limited number of countries represented at the meetings, and he said that nothing definite could be done until the Governments of all the countries appointed delegates to meet together and discuss the matter. He suggested that the Belgian Government should take the matter in hand, and moved—

> That the Governments of the countries most interested should each appoint at least two official delegates, and that the minor States should also send representatives; that the programme should he drawn up in detail, and studied by the delegates, before the meeting of the Congress; and that the fundamental principles of the programme should be communicated to the governing medical corporations of the countries represented, with the request that they should he considered and reported on. In addition to the official delegates representing the States, the principal Academies and Pharmaceutical Societies should he asked to send delegates.

The whole matter was taken into consideration by a committee of the Congress, who brought up the following recommendations:—

> To have a comparative tahle prepared showing the differences in strength of medicaments hearing the same name in different

Pharmacopœias. To have this table distributed to the Pharmacopœia Commissions, to the Academies of Medicine, and the Pharmaceutical Colleges and Associations of the various countries, with the request to take this matter into due consideration at their next Pharmacopœia revision, and to adopt as much as possible a uniform standard of strength, and where differences still remain to call attention to such in foot-notes.

To ask the Belgian Government to arrange with other Governments a Conference in Brussels, and to ask all the delegates appointed to such a Conference to have their proposals ready to lay before the meeting whenever this may be called.

This month's meeting is to be exactly what the Paris Congress wanted—delegates, who have been appointed by various Governments, will consider the matter. It is noteworthy that our Belgian *confrères* have during the existence of the International Pharmaceutical Congress done more service in furthering its objects than the chemists of other countries, and we have reason to believe that they will on this occasion succeed through the International Commission in securing the basis for Pharmacopœia uniformity which has been aimed at for thirty-five years, and so far with little success. We understand that practically all countries that have a national Pharmacopœia are to be represented on the Commission, but the United Kingdom alone is not represented by a pharmacist. This is regrettable, and is owing to the fact that the invitation to participate was sent to our Government, which conveyed it to the General Medical Council (the statutory authority that compiles the Pharmacopœia), and the Council appointed Dr. Donald MacAlister (Chairman of the Pharmacopœia Committee) to represent it. Fortunately a pharmacist resident in this country is also a member of the committee—namely, Dr. Frederick B. Power, director of the Wellcome Chemical Research Laboratories; but Dr. Power goes on the Commission as the pharmaceutical delegate of the United States Government, his colleague, Dr. H. C. Wood, being the medical delegate. We have no doubt that Dr, Power will bring his intimate knowledge of British Pharmacopœia requirements, as well as those of the U.S.P., to bear upon the deliberations of the Commission, but the fact that there will not be on the Commission a pharmacist actually delegated as the representative of British pharmacy is fresh evidence of the anomalous position in which we stand in Pharmacopœia matters.

A Bleaching-powder Crisis.

As mentioned in The Chemist and Druggist of last week on page 402, the agreement that has been in force for four years between British manufacturers of bleaching-powder ceases to exist at the end of this year. The fact has been notified in a circular issued by the United Alkali Company, and has caused no little excitement in the chemical-trade. It particularly applies to next year's contracts, and practically means that whereas the output of bleaching-powder in this country has hitherto been restricted and prices regulated according to the market, it will now be thrown open to free competition. Already this has begun to be felt, as contracts have been made over next year at a considerable reduction on present prices. It would appear that the United Alkali Company have been the prime movers in the matter, and it is evident that British makers have been sufferers by the combination. Hitherto continental houses with their agents on this side (who, of course, have a thorough knowledge of English prices in the various markets), have always been able to quote slightly under the British make, and thus secure business. Now there will be keen competition for foreign business, and it will probably be done at a loss for some time to come. This action has been forced on British makers, who during the past four years have practically had their hands tied, as under the terms of the Convention one of the largest German firms of bleaching-powder manufacturers (the Chemische Fabrik Elektron) have been allowed to throw 6,000 tons per annum on to the British market, and it is principally because they want to increase this amount that the present crisis has occurred. Of course there is a possibility that some arrangement may be come to, but the growth of electrolytic processes in this country and elsewhere, and the fact that ammonia-soda makers are now able to put bleaching-powder on the market, are not the least serious factors that the older makers have to reckon with. So far the last named have made their profits on "bleach," alkali being produced at a loss, and they will not be the least sufferers by low prices, although the circumstances may help to squeeze out young electrolytic works which have been started on the basis of a good price for "bleach."

THE CAMPAIGN COMMENCED.

The latest phase of the anti-substitution movement, to which reference was made in these columns a fortnight since, is an advertisement in the following style, occupying a 6-inch double-column space in one of the London evening newspapers:—

"SUBSTITUTES."

Even if the dealer's name appears on the label of a substitute it is no real guarantee as to origin, for the reason that some wholesale supplier of substitutive imitations, usually prints the retailer's name on a blank space on the label as maker. The recommendation "I make it myself" is therefore in most cases unreliable.

As fraudulent and inferior imitations of the nature referred to are sold only by a minority of shopkeepers, and then simply for additional profit, quite irrespective of the damage sustained by the purchaser, all shops should be avoided where substitutes, be they medicines, foods, whisky, cycles, tobacco, &c., are in any way pushed.

The inclusion of foods, whisky, cycles, and tobacco in the advertisement is rather a falling-off from the parade of the familiar phrase, "I make it myself," and it does not suffice to hide the fact that the drug-trade has now to reckon with a campaign of disparagement which may be well deserved in the case of "a minority," but which cannot fail to reflect upon the whole class.

COMPANIES AND THE SALE OF POISONS.

The following letter appeared in several of the daily newspapers last week, some printing only the first half of it:—

Sir,—In your report of the proceedings of the Health Congress in your issue of to-day it is stated in the paper on "The Law Relative to the Sale of Poisons," read by Mr. Glyn-Jones, that companies could keep shops where deadly poisons were stocked and sold, and they did not break the law if they had a hundred such shops, and employed not a single qualified man.

That is not so. Without employing a qualified man a company would break the law if it sold the smallest quantity of a poisonous substance in common use, such as twopennyworth of carbolic acid.

Companies stand exactly on the same footing as private chemists in this way, and in respect to poisons it is the personal seller who is responsible for the sale.

In fact, private chemists are much worse offenders than companies in this matter, for there are many cases where a private chemist runs several shops with an unqualified manager in each, and I know personally of one case where in six shops a private chemist employed only one qualified man, and sold poisons at all the six.

Representing, as I do, companies owning nearly 300 chemist and druggists' shops, every one under the management of a chemist fully qualified by examination of the Pharmaceutical Society, I contend that such statements as Mr. Glyn-Jones made are calculated to mislead public opinion on the matter.—Yours, &c.

Jesse Boot.

Station Street, Nottingham, August 27.

Mr. Glyn-Jones said "companies . . . do not break the law if they have a hundred shops where poisons are sold

every day, and employ not a single qualified man." This is, unfortunately, true, and it is because a company as a company cannot do a manual act that companies find it convenient to employ qualified persons to conduct poison transactions on their premises. It is not legally necessary that companies should employ such persons, but if they employed unqualified persons for the purpose these persons (but not their employers) would be liable to be prosecuted for every sale they made. It is worth while remembering, however, that companies must conform to the provisions of Section 17. Mr. Boot's point about the unqualified manager is worth notice. Is it the case that the actual manager of every branch shop is a qualified person? We have understood that companies frequently employ smart unqualified men as managers, and when that is so, a qualified assistant is also kept on the premises, but this is not an invariable rule.

MR. GLYN-JONES'S REJOINDER.

Writing to the *Sheffield Daily Telegraph*, Mr. Glyn-Jones quotes his own statement *verbatim*, and says :—

> It is a statement of fact, which Mr. Boot does not attempt to deny. I said nothing as to whether the companies in which he is interested employs qualified men or not. My point is that an individual who keeps open shop for the sale of poisons breaks the law if he is not a registered chemist, whereas limited companies of unqualified persons are outside the law in this respect.
>
> I submit that companies should be made directly respousible in law for providing qualified men to sell poisous, and that it should not be necessary for Mr. Boot to assure the public that the shops owned by his companies are under the managemeut of registered chemists. Companies, as well as individuals, who own shops should be held responsible in law if poisons are sold at the hands of their unqualified assistants.

It will be seen from this that Mr. Glyn-Jones is also amongst those who believe that the only way to settle the company-question is to legislate.

OVER-REACHED HIMSELF.

The funny man on the staff of the *Western Druggist* has been trying to chaff us, but the funniest thing about his effort is its inaccuracy. Referring to our commentary in The Chemist and Druggist of June 14, page 926, he says :—

> Since the conclusion of the Boer war our British cousins are feeling so ebullient and jolly that there is danger of their over-doing things and running themselves out of breath. Thus the latest effort of one of the most prosperous London contemporaries "to get up to date," as we are informed in an editorial with the exultant headline "Gur-r-r-r-r-r-r-r-r-r-r," has done itself brown by installing in its business-office a telephone. First the soda-water fountain for the chemist aud druggist and then immediately after the telephone for The Chemist and Druggist—surely, Yerkes and Morgan have not crossed the big pond in vain. To think of it! A telephone – already!

If the writer had taken the trouble to read our par. correctly, or had known anything of British pharmacy, he would not have fallen into the grievous error of imputing the ways of the Pharmaceutical Society to us. As a matter of fact, The Chemist and Druggist had the telephone working when our Chicago contemporary was still teething.

German Pharmaceutical Society.

THE thirty-first general meeting of the Deutscher Apotheker-Verein was held at Coblenz on August 27 and 28. At a preliminary meeting of the Executive Board Dr. H. Salzmann, of Berlin, was elected President, in place of the late Dr. C. Baetcke; and Dr. E. Vogt, of Butzbach, was appointed Vice-President, in succession to Dr. Salzmann. After a festive gathering in the State Banqueting Hall on August 26, the business-meeting was opened on August 27 in the Casino, Dr. Vogt presiding, in the absence of Dr. Salzmann through illness in his family. Dr. Vogt first welcomed the guests. One of the visitors, his Excellency Herr Nasse, responded in an address, expressing best wishes for the success of the meeting.

The Annual Report

stated that the question of the State legislation for German pharmacy has not advanced much during the year. The relations of pharmacists to the sick-fund societies are described as having developed to a wonderful extent. A proposal was made at last year's general meeting by representatives of Mid-Silesia that the Society should petition the Government to take measures to stop medicaments being illegally procured by hospitals and sick funds from drug-stores. The motion was accepted on condition that the Executive Board should be supplied with the necessary evidence and material to back the request. Contrary to expectations, the evidence has not been supplied, so no petition was sent. The regulations regarding secret remedies still remain unsettled. During the year the permission for pharmacists to use alcohol free from duty has been withdrawn. One of the most important events of the year is the new regulations regarding military pharmacy, issued on May 14, which ensure better rank and pay for the military pharmacist. A petition was presented to the Prussian Minister of Education to the effect that pharmacists should no longer be forced to accept returned empties—*i.e.*, bottles, boxes, powder-boxes, &c.—when prescriptions are dispensed, on the ground that it is better for all parties that fresh containers should be supplied to customers. The Minister rejected the petition. The last general meeting of the Society, held at Hamburg, commissioned a committee to publish formulæ for the preparation of specialities for use by members of the Society, under a special mark. The committee have taken the necessary steps to register the Society's mark, and the collection of formulæ is finished.

Some indignation was expressed by members in the course of the discussion regarding the decision in the hospital matter, and Dr. Brackenbush, of Wiesbaden, expressed regret that the Technical Committee of Pharmaceutical Affairs should have opposed the wishes of the majority of German pharmacists regarding returned empties. The meeting then discussed various proposals. The first one carried was in regard to

Trade in Medicaments.

It was resolved that the Government should be petitioned to (1) definitely define the words "Heilmittel" (remedy) and "Grosshandel" (wholesale trade); and (2) to compile a list of the medicaments allowed free sale.

Pharmaceutical Training

then came up. It was agreed to request the Royal State Government not to decide the new regulations for pharmaceutical preliminary and finishing training until the opinion of the pharmaceutical representative body—*i.e.*, the pharmaceutical chambers (Apothekerkammer) shall have been heard on the subject.

Dispensing-charges (Taxe).

It was resolved to request the several Governments, in view of the withdrawal of permission for pharmacists to use alcohol free from duty for medicinal purposes, to adequately advance the price of all spirituous preparations.

The right of medical men and veterinary surgeons to dispense was also discussed, and it was considered that homœopathic doctors should be under the same regulations as other medical men; also that veterinary surgeons should be subjected to the same conditions as pharmacists for dispensing medicaments.

The Second Day's Proceedings

may be briefly described. Professor Partheil, of Bonn, gave an interesting lecture on Friedrich Mohr, the founder of volumetric analysis. Dr. Bedall, of Munich, and Dr. Jehn, of Geseke, were re-elected members of the board of directors; and Mr. Nithack, of Obernigk, was chosen in place of the late Dr. Baetcke. It was decided to publish a yearly report in the *Apotheker Zeitung* on the business portion of pharmacy.

Much applause greeted the report of the President on the endeavours of the Society to place the preparations of nostrums and specialities under the control of pharmaceutical laboratories, so that retailers may know what they are made of.

The next meeting will be held in Munich.

Pharmaceutical Education in Ontario.

By Thomas Maben, F.C.S.

DURING a recent visit to America I had the opportunity of acquiring some information as to the condition of pharmacy and of pharmaceutical education there. I had the privilege of interviewing several distinguished pharmacists and of inspecting the colleges of pharmacy in New York, Chicago, and Toronto. New York College of Pharmacy is a handsome, commodious, modern building, with large, airy classrooms, well fitted with every appliance necessary for teaching-purposes. The building was erected a few years ago largely by the energy of Mr. Samuel Fairchild and a few like-minded patriotic New York pharmacists, and it is a credit to pharmacy and to the city, while its chairs are filled with men of ability and world-wide repute. In Chicago I met Professor Oscar Oldberg, Dean of the Faculty of the North-Western College of Pharmacy, and from him I learned many interesting particulars regarding pharmaceutical education and examination in the principal States. Taking the United States as a whole, it appears that of the druggists who register under the various State Boards not more than 20 per cent. have attended any course of pharmaceutical education, the remaining four-fifths getting through their examination—frequently not a very difficult undertaking—as best they can. In New Mexico only, the youngest of the States, does the law require candidates to be graduates of a college. At the present moment a movement is on foot to form an association composed of the various colleges and schools of pharmacy in the United States, the object being to promote the common interest and to influence legislation in such a way as to raise the educational level. All the principal colleges have become affiliated with the new association, and in view of the urgent need for reform it is to be hoped that the movement will meet with success. In Chicago the curriculum extends over two terms of six months each, but an effort is being made to have the terms extended to nine months. The college-fees amount to $100 per annum. There are usually upwards of 200 students in attendance, and to teach these there is a staff of eleven, including professors and demonstrators. When I was in Chicago the North-Western College was in the throes of an impending removal, but I saw the six laboratories connected with the building—namely, inorganic chemistry, with bench accommodation for upwards of 200 students, organic chemistry, pharmacy, dispensing, botany, and bacteriology. The College authorities have purchased premises in the centre of the city at a cost of half-a-million dollars, and these have been remodelled for the purposes of the institution. Since they made their purchase they have been offered a million dollars for the property, but believing that the central situation, being much more accessible to the students, will conduce to the prosperity of the College, they have refused this very tempting offer. Besides, the North-Western University requires the present pharmacy laboratories for the further development of the medical school. Generally speaking, the lecture-rooms and laboratories both in New York and Chicago are much superior to those in Bloomsbury Square. The number of students in attendance is very much larger, and I believe this also applies to Philadelphia College, which I was unable to visit.

After leaving the United States I spent a few days in Canada, and there I met with what I consider to be the nearest approach to an ideal system for the training of pharmacists that I have yet seen. Pharmacy in Great Britain being at present in a process of convulsion, with not very much certainty whether its head or its feet will come out uppermost, it may be advantageous to try and glean some hints for our guidance from such sources as are likely to be helpful, and therefore a somewhat detailed account of pharmaceutical education and examination in Ontario appears to be in order. For most of the facts which follow I have to express my indebtedness to Professor Heebner, the courteous Dean of the Faculty of Toronto College of Pharmacy, with whom I spent several hours.

The college itself, as the illustration shows, is a handsome building of three floors. Originally instituted in 1882 in temporary quarters, it was removed some six years later to the present building, which was erected and equipped at a cost of over $21,000. In 1891 the building was enlarged, so that it now covers the entire lot—65 feet by 175 feet—the total cost having been over $40,000. On the ground floor are the students' recreation-room and reading-room, library, private laboratory (in which the professors prepare the materials for their lectures), and a store-room, from which a lift runs to the laboratories above. On the second floor are the Council-chamber, the Dean's room, the chemistry and pharmacy lecture-room (with accommodation for 140 students), and the pharmacal laboratory (which is fitted up in modern fashion, and accommodates 144 students, or 72 working at one time). On the third floor is the lecture-room for botany, materia medica, and toxicology, with desk-accommodation for 130 students. Two long work-tables, extending the whole length of the room, are arranged for use in the study of microscopy and pharmacognosy. These are divided into compartments, fitted with locked drawer, and each work-section is provided with a microscope, reagents, staining-fluids, and appliances for mounting. On this floor also is the chemical laboratory, with accommodation for 144 students, or 72 working at

The College of Pharmacy, Toronto.

one time; and adjoining are the balance-room, store-rooms, and professors' private rooms. Altogether, the building is admirably planned and well equipped, the only fault connected with it being that the work of the institution is rapidly outgrowing the accommodation, and the Council of the College may soon be face to face with the necessity for another enlargement.

Pharmacy Legislation in Ontario

dates from 1871. In that year the Legislature passed the first Pharmacy Act, under which certain powers as to registration and examination were conferred on the Ontario College of Pharmacy. The Act did not specify any definite time for apprenticeship, nor for qualifications on entering the same, but these omissions were rectified in amendments enacted in 1884 and 1889. By the latter Act a Matriculation examination was instituted, and all students were required to attend two courses of lectures—the junior in Ontario College or any college approved by the Council, and the senior in Ontario College. This Act also gave the Council power to fix and determine the curricula of studies from time to time. In 1900 a further amendment was enacted, power being granted to raise the standard of

matriculation, and the new standard became obligatory on January 1, 1901.

Every person desirous of becoming apprenticed to a regularly qualified pharmaceutical chemist must, before the term of his apprenticeship begins, send the sum of £1 as a Matriculation-fee to the Registrar of the College, and submit a certificate that he has passed a satisfactory examination in the following subjects: Arithmetic, algebra, history of Great Britain and Canada, English grammar, composition, and Latin. These requirements having been complied with, the student engages himself by a written contract with a pharmaceutical chemist, all the details of this contract being arranged and carried through by the Registrar of the College, who is thus brought into touch with the student from the very outset. Thereafter the youth legally begins a period of apprenticeship, in which relation he must serve for a term of four years. In the event of the apprenticeship being broken from any cause, the student is at liberty to enter into a new contract, through the Registrar, to complete the remainder of the unexpired term with another employer. There is no limit as to the age at which an apprenticeship may commence, but no one is eligible for the diploma of the College until the age of 21 has been attained.

The College Curriculum

required by law is by no means a long one, the junior course occupying fifteen weeks, from September to December, and the senior eighteen weeks, from January to May. The shortness of the course necessitates crowding, and in order that the students may be as competent as possible to take full advantage of the teaching, the Council of the College have prepared a curriculum of study to be followed out by apprentices during their four years of service. Before entering on this course of study the apprentice must arrange to devote a certain period of time to his books—at least one hour per day to begin with, and lengthening out his study-hours as his interest increases. In the time thus set aside the student is enjoined to read with eagerness—"read for facts to turn over in his mind and memorise while cleaning up the store and washing bottles. The knowledge thus acquired should be safely guarded, and the omission of a day's reading avoided as he would avoid the loss of a dollar from his pocket." For the duties of pharmaceutical practice the employer is the teacher, and it is his duty, by virtue of his position, to encourage and favour the professional improvement of his employés by all suitable measures. Keeping in view this co-operation between master and apprentice, a synopsis of study has been laid down for the four years. It is as follows:—

FIRST YEAR.

First Principles of Pharmacy.—Systems of weights and measures, including the metrical system, and their relations to each other; sp. gr. and specific volume; mathematical calculations involving the above; minor pharmaceutical operations, as the subdivision of drugs; solutions, with and without heat; filtration, the proper folding of filters, &c.

Text-book: "Manual of Pharmacy and Pharmaceutical Chemistry."

References: Preface to British Pharmacopœia, Parrish's "Treatise on Pharmacy," Remington's "Practice of Pharmacy."

Elements of Physics.—This study will prove to be of so much interest that it may be rapidly mastered.

Text-book: Peck's "Ganot's Physics."

First Principles of Chemistry.—The assistant should familiarise himself with the first 128 pages of Attfield's "Chemistry," and from time to time review the same (particularly the first fifty-eight pages), until the important truths of chemistry are understood. General chemistry is here treated of from a pharmaceutical standpoint.

Botany.—The study of organography, as given in the first 123 pages of Bastin's "College Botany," which includes the vegetative and reproductive organs of plants, is the limit of study recommended in the subject. If, however, time should permit, the further study of vegetable histology is advised, and at all times the collection, preservation, and mounting of plants, or portions of plants exhibiting the marked features learned of, should be pursued.

SECOND YEAR.

Titles.—The correctly spelled and unabbreviated Latin and English titles of official drugs and preparations should be learned and written from time to time during this year; the synonyms by which these are known should also be memorised. [Refereuce to any pharmaceutical substance by its syllabic abbreviations should be discountenanced, as being unscientific, inaccurate, and tending to carelessness—as "pot. chlor." for chlorate of potassium; "sod. sulph." for sulphate of sodium; "mag. sulph." for sulphate of magnesium, &c.]

References: British Pharmacopœia, Squire's "Companion," "National Dispensatory."

Operative Pharmacy.—The commoner pharmaceutical operations should be carefully studied and carried into practice in the preparation of tinctures, syrups, wines, vinegars, ointments, &c., required in the shop.

Text-book and References same as used in first year, also the British Pharmacopœia.

Latin.—The rudiments of etymology, accidence, &c., of nouns, adjectives (especially numerals), pronouns and verbs; syntax; abbreviations used in prescriptions and their translation.

Text-books: Robinson's "Latin Grammar of Pharmacy" and Pereira's "Prescription-book"

Chemistry.—The remaining pages of Part I. of Attfield's "Chemistry" should be carefully studied and reviewed from time to time during the remainder of the course. In the pages mentioned the methods of qualitative analysis are gradually introduced; the solubilities of salts are classified; chemical equations are explained, and directions are carefully given for calculating quantities of materials from the chemical proportions stated by an equation.

Materia Medica.—Each important official animal and plant drug should be studied as to its source, part used, habitat, active principles, medicinal properties, and doses. The physical characters of the crude specimens and the distinctive features by which they may be identified should be mastered.

The studies of the first year should be reviewed, and a short time spent each day in the interpretation of prescriptions.

THIRD YEAR.

Pharmacopœia Preparations.—These should be studied as to their ingredients, methods of preparation, strengths, and doses. these facts are conveniently arranged and tabulated for this purpose in "Synopsis of B.P. Preparations."

References: British Pharmacopœia and Squire's "Companion."

Prescriptions and Dispensing.—The prescription-files should be carefully studied, and by mathematical calculation the quantity of each ingredient in the prescribed dose determined. The preceptor should permit the assistant to compound prescriptions under his direct supervision, and in accordance with his specific instructions. Too much experience of this character cannot be gained, as opportunities are frequently presented whereby the preceptor may point out and explain incompatibilities, as to whether they are intentional or accidental, and the means of avoiding them if required.

Operative Pharmacy should be continued practically throughout the remainder of the course. Review work of second year, and pharmacopœial preparations of this year's course.

FOURTH YEAR.

A general review of the subjects of previous years, and a continuance of study in all subjects by reference reading, using the "Dispensatories" and Squire's "Companion" for reference, as well as other text-books already mentioned.

For *General Study* during the apprenticeship period, the following branches should be occasionally reviewed, mathematics receiving special attention.

Arithmetic.—Vulgar and decimal fractions, percentage, ratio, proportion, allegation, &c.

Mensuration.—Areas of circles, parallelopipeds, cylinders, &c.

Algebra and Geography.

Having completed his apprenticeship the young chemist may continue for some time as an assistant, or he may enter the College of Pharmacy. During his course there he receives as complete a training in the theory and practice of pharmacy and the allied sciences, as is possible in the time allowed; if he has made good use of his four years' apprenticeship, the end of the course should see him a well-qualified pharmacist. It may be noted that in physics special attention is devoted to optics and photography, and a course of lectures is given in toxicology, in which, *inter alia*, the action of some of the more common poisons is illustrated practically by experiments on lower animals, while the practical work in this subject includes methods of extraction of poison from organic substances, such as occur in ordinary toxicological analyses. I was particularly struck with Professor Heebner's method of teaching pharmacy, and he has been good enough, in a letter which I have since received, to explain the basis of his method. I quote the following:—

I hold (writes Professor Heebner) that the value of theoretical instruction and lecture-demonstration depends largely upon the opportunities which the individual student may have in applying

the knowledge so gained. Many disappointments and failures in manipulation result wholly from lack of practical experience. Great importance should be attached to manipulative or technical skill, and, recognising the difficulties which stand in the way of its attainment during the ordinary course of apprenticeship in the average drug-store, I have determined to make the instruction of our pharmaceutical laboratory of a thorough and practical kind.

To this end work of an entirely practical nature is selected for the laboratory exercises, including operations which, while typical of a class, can also be profitably repeated on a commercial scale with the apparatus and facilities which should be found in every retail establishment. My course has been arranged systematically upon this basis, keeping in mind the necessity of commencing with the more elementary general operations, and teaching correct methods of executing them, and then proceeding to the more difficult. Hence, at each exercise, before proceeding with the practical work, a lecture and a practical demonstration are given, following out in detail the various steps of the manipulatory exercise about to follow; the difficulties which will be likely to present themselves are mentioned (and shown when possible), and the methods of overcoming or avoiding them are explained or shown.

Demonstrations of this kind invariably require the expenditure of much time and labour on the part of the teacher during a day or two previous to the day of the demonstration, in order to have material ready to illustrate every stage of the operation, and, in some cases, as many as half-a-dozen portions of material have to be got ready and carried to various stages of completion. The minor steps of detail are all exhibited, in order that they may be correctly carried out and thus hasten the operation. The materials for the preparation are weighed out in the presence of the class, filtratious carried on where necessary, the filter required for the purpose folded at the time, and the material introduced into the filter previously properly placed in a funnel of suitable dimensions; but instead of waiting for the filtrate to pass a similar filtrate from a previously prepared portion is taken and carried on to another stage, which might perhaps be evaporation on a water-bath to a prescribed volume. The liquid is therefore introduced into a capsule of proper dimensions, and supported upon a suitably constructed bath, and without waiting for the completion of this operation the product of a similar treatment of another portion is taken and carried on to a further stage. If a scale salt of iron is being prepared the cooled evaporated syrupy liquid would be flowed over the surface of a glass slide and placed in the desiccating-room, and there would then be exhibited to the class the scales on a glass slide placed in a desiccator on the previous day. Hence the student witnesses the weighing and measuring of drugs required, each step of the operation with the technique fully dwelt on, and finally the product he may expect if his work is properly done. Testing for purity and impurities is carried on and explained during the demonstration. After the completion of the operation the product is put into a suitable bottle or other package and labelled, using correct Latin titles, &c., and at the same or another exercise its strength, purity, sp. gr., or other important identifying features are determined, and its physical character studied in the same systematic manner as it has been prepared. Gravimetric and volumetric analyses are employed when required. The student is then asked to duplicate the work which I have completed, and is marked for the manner in which he carries out the technique, and for the character of the finished product, strength, purity, freedom from side-products, &c., being determined, if possible. The assays of alkaloidal, resinous, glucosidal, and other drugs are demonstrated after a similar manner, as well as are the manipulation of pill-masses, ointments, emulsions, powders, plasters, suppositories, cachets, tablet-triturates, compressed tablets, lozenges, capsules, &c., and all features involved in the operations of dispensing, including trimming of labels, their position on the bottle, capping of bottles, wrapping of packages, &c.

Examinations.

At the close of the junior course an examination is held, and this must be passed before the student is admitted to the senior course. The final examination—that is, the examination for a licence to conduct business in Ontario—is held immediately after the close of the College session in May, a supplementary examination for those who have failed to pass being held in the December following. In order to become a candidate, the applicant must have completed the four years' indentured apprenticeship, and have attended the two courses of lectures on the specified subjects, and he must pay to the Registrar the examination-fee of $10. It may be here mentioned that the entire fees connected with the course—namely, matriculation-fee as apprentice, college entrance-fee, class-fees, and examination-fees, amount to $118, rather less than 24*l.*, which is an exceedingly moderate figure when compared with the cost of pharmaceutical education and examination in Great Britain.

The subjects of examination are eight in number—namely, theoretical chemistry, theoretical pharmacy, materia medica, botany and prescriptions, and practical chemistry, pharmacy, and dispensing. A value of 100 marks is assigned to each subject, or 800 marks in all. The examination is mainly written and practical, but oral examinations also take place in the theoretical subjects. In the written papers not more than eight questions are asked, of which the total value is not more than eighty, the remaining twenty marks or more being allotted to the oral examinations. Subdivisions of questions are not so far multiplied as to prevent a capable candidate giving full and complete answers in the allotted time. The Council has adopted certain rules for the guidance of examiners, and some of these are so wise that they deserve to be quoted:—

Every examiner shall, at least four weeks prior to the examination, send, by registered letter, to the Chairman of the Board of Examiners, a fair written copy of the paper he desires to set, with the values aforesaid affixed. In case of any alteration being deemed advisable, the Chairman shall confer, by letter, with the examiner, so that any change may be mutually acceptable.

On the receipt of the names of the candidates by the Registrar he shall assign to each a number and a fictitious name, and his real name shall not be disclosed until the reports of the individual examiners shall have been submitted at the meeting of the Board at the close of the session.

A candidate shall be deemed to be entitled to a diploma when he shall have secured at one examination 534 (66·6 per cent.) out of the total 800 marks, and at least fifty marks in dispensing, pharmacy, and prescriptions. Any candidate who may have failed to reach this standard, but has obtained 66·6 marks in each of any five subjects at one examination, shall be deemed to have passed in these subjects, and may at a subsequent examinatiou have the option of taking all the subjects, or only those on which he may have failed, but in the latter case he must obtain at least 66·6 marks in each subject before he can be entitled to a diploma.

In the event of a candidate obtaining 66 6 marks on only one or two of these three subjects, he is registered on the one or two, taking the remaining subject or subjects at a future examination. With regard to these rules, there are a few points that deserve emphasis, because if they are faithfully carried out they are exceedingly valuable. In the first place there is the elimination or suppression of the examining faddist. The supervision of the examiner is sometimes as essential as the supervision of the candidate, and in a body of eight examiners there is likely always to be one man who unduly magnifies the importance of certain aspects of his subject. Secondly, the fact that the identity of the candidate is unknown to the examiner is a guarantee of absolute impartiality. This does not imply that any examiner is ever guilty of conscious partiality, but the removal of all temptatiou to, and possibility of, its exercise is surely desirable. Thirdly, every candidate who pays his fee is examined, as he is entitled to be, in all the eight subjects. He is not liable, as in some countries we have heard of, to be thrown out on the result of a first day's work, or, as has been known to happen, on the first subject of the second day. Lastly, the practical result is the division of the examination. It is not an ideal division, but, in default of a better, it answers this desirable end, the candidate who is strong in five subjects getting credit for these, and passing the remainder when he can. This is au example that might well be followed by other Boards; in particular, a candidate who has passed a satisfactory first-day's examination ought to get credit for that, and be allowed to come up for his remaining subjects six months later if he wishes to do so, even if has been unsuccessful in passing them at his former attempt.

The syllabus of examinatiou is very complete, and it covers quite as much ground as is required for the Minor examination in this country. In practical chemistry the candidate is examined in urinary analysis, detection of albumin, sugar, phosphates, urates, acetone, and bile, and the quantitative estimation of sugar. In practical pharmacy is included the purification of pharmaceutical chemicals, the determination of sp. gr. and volume, of the alcoholic strengths of spirits, of the extractive matter in liquid galenical preparations, of the strengths of official and officinal compounds and preparations by ignition, volumetric and gravimetric analysis, of the melting-points of waxes, fats, and synthetic coal-tar products, &c., and such alkaloidal assays as can be performed within the time.

Previous to 1891 the failures in the examinations were numerous, but after the reorganisation of the College in that year a great improvement took place. The examination is strictly based on the work done in a well-defined curriculum, and as might be expected, the failures are now comparatively few. For example, in the May examinations of this year 127 candidates presented themselves for the first time; of these 110 passed and obtained their diploma, 7 passed in five subjects, and 10 failed to satisfy the examiners. Such a result as this has been unheard of in this country for a generation at least.

Exactly ten years ago the Senate of the University of Toronto admitted the Ontario College of Pharmacy to affiliation with the University, and in the same year, 1892, the degree of

Bachelor of Pharmacy (Phm.B.)

was instituted. Candidates for this degree must have passed the final examination of the College of Pharmacy, but no other condition is required which is not already included in the regulations of the College, so that practically all pharmaceutical chemists in Ontario are eligible to sit for the examination without attending any further course. The subjects of examination are (1) botany and microscopy; (2) theory and practice of chemistry and toxicology; (3) materia medica, including posology and pharmacognosy; and (4) theory and practice of pharmacy, including interpretation of prescriptions and dispensing. The examinations are partly written, partly oral, and partly practical, and the standard is of course much higher than that of the Licence examination. It is, however, considerably lower than what is proposed as the standard to be adopted by the Scotch Universities under the scheme at present being considered. Of the 110 successful candidates in May, no fewer than 47 took the degree, and one of these I had the pleasure of meeting—namely, Miss K. H. MacCrimmon, the first lady bachelor of pharmacy in the Dominion, and whose success Professor Heebner naturally regards with a considerable degree of pride.

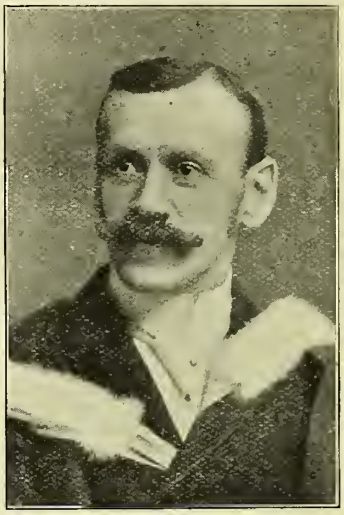
On a general review, I can only repeat my belief that the system of pharmaceutical education adopted in Ontario is vastly superior to our own—that, in fact, it is an ideal system. From the beginning the logical position is taken up of requiring the student to complete his school studies before he begins his apprenticeship. Too high a preliminary standard is not demanded, and consequently the student is not hopelessly discouraged at the outset. During apprenticeship he is encouraged to devote his leisure hours to study, and he is thus in a position to take full advantage of the curriculum at college. This course is compulsory, but its extent is so moderate and the fees so reasonable all round that no one considers it a grievance. Some may consider that the course is too short for the work that is crowded into it; but here, again, it is better to hasten slowly, and allow the trade opportunity for development before adding unduly to its burdens. I hope that they may soon be able to extend the curriculum to two years, at all events for the Phm.B., which is a very high distinction considering the amount of work required for it. All these matters, however, our Canadian friends can be trusted to arrange for themselves.

The College Faculty

consists of five teachers, in respect to whom I am enabled to give some particulars.

Professor Heebner is of German parentage and was born in Lee, Massachusetts, U.S.A. He was educated in that State, and graduated from Williams. Then he was apprenticed to Mr. A. W. Fairchild, pharmacist, South Hadley Falls, Mass., and four years later matriculated at the New York College of Pharmacy. There he graduated in 1881, taking first class honours in the examinations of the junior and senior courses. On entering the N.Y.C.P. as a student, he also entered the chemical and pharmaceutical laboratory of Lazell, Marsh & Gardiner, as an assistant, and the day following his graduation he was advanced to the position of chemist in charge of the laboratory. He continued in this connection until 1891.

As a teacher, Professor Heebner dates his experience back to the time when, as a boy of 14, he taught German to a number of assistants; then, for two years following his graduation, he prepared assistants for the examinations of the Boards of Pharmacy, and privately tutored students of the N.Y.C.P. In 1884 he was appointed instructor in pharmacy at the N.Y.C.P., during his connection with which he prepared and published his "Manual of Pharmacy and Pharmaceutical Chemistry," of which many editions have since been published. He took a keen interest in the Alumni Association of the College, and furthered its work greatly. His next important move was in 1891, when he received his appointment to the teaching-staff of the Ontario College of Pharmacy. There his familiarity with the theory and practice of pharmacy in all of its phases, as a dispenser, pharmaceutical and chemical manufacturer, and as a teacher, brought about the introduction of original and decidedly effective methods for teaching the subjects of his department. At the close of his first year's connection with the O.C.P., the University of Toronto conferred upon him the degree of Bachelor of Pharmacy *honoris causa*. In 1893 he was appointed lecturer and demonstrator in materia medica and elementary therapeutics on the Medical Faculty of the University of Toronto, and in 1897 advanced to associate professor of pharmacology. During his connection with the O.C.P. he has written and published his "Synopsis of B.P. Preparations," one of the best books of the kind in the English language. As a teacher he has always been popular with his pupils, and others associated with him. Familiarity with details of theory and technique make his practical demonstrations exceedingly instructive, and after his treatment of a subject there is left very little room for argument. He waives nothing in his demonstrations, which are always neatly, rapidly, and accurately done, giving evidence of experience as a manipulator.

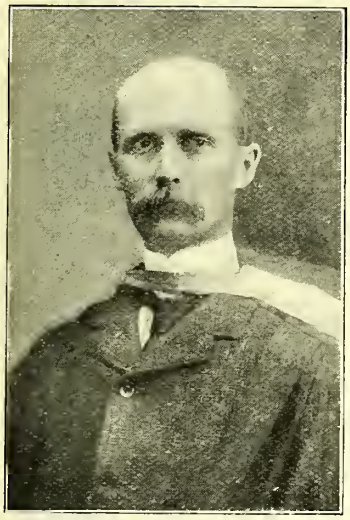


Chas. F. Heebner, Phm.B. (Tor.), Ph.G. (N.Y.), Dean;
Professor of Theory and Practice of Pharmacy and Dispensing; Director of Pharmaceutical and Dispensing Laboratories.

A. Y. Scott, B.A. (Tor.), M.D., C.M. (Trin.),
Professor of Analytical Chemistry and Botany.

Dr. Scott, professor of analytical chemistry and botany, is a born teacher. He is of Scottish parentage and Canadian birth. The early part of his life was spent in the town of his birth, Stratford, Ontario. His Arts course was taken in the University of Toronto in the years 1878-82, graduating with first-class honours in natural sciences and college-prizeman in chemistry. During his university course he was known as one of the leaders in undergraduate politics and athletics. For nine years after

his graduation he was resident master and head of the science department of Upper Canada College. During that time he studied medicine at Trinity Medical College, and graduated with first-class honours in 1887. Afterwards he was appointed lecturer in biology in that College, and in 1891 became associated with the O.C.P. He is a Mason. He takes much interest in military affairs, and is one of the most capable officers of the Queen's Own Rifles, being put by Colonel Otter in command of the half of "C" Infantry School during the North-West campaign of 1885. As chief officer he saw brisk fighting during the rebellion. Dr. Scott now holds the rank of major in the Canadian Army Medical Staff, and commands No. 4 Field Hospital.



J. T. FOTHERINGHAM, B.A. (TOR.), M.D., C.M. (TRIN.),
Professor of Materia Medica and Pharmacognosy.

Professor Fotheringham is of Scottish parentage and Canadian birth, a "son of the manse," born 1860, and brought up in a country parish in the "Huron Tract," Perth County. He matriculated at Toronto University in 1879, where he graduated as B.A. in 1883. He then acted as classical master in collegiate institutes until 1891, when he graduated in medicine in both Trinity and Toronto Universities, carrying off the second place and silver medal in the former University, and licence to practise from the College of Physicians and Surgeons, Ontario. In 1891 he was appointed to the staff of the O.C.P. in materia medica, Latin, posology, and allied subjects, and has held also for the past ten years appointments on the staff of Trinity Medical College, being professor of therapeutics and associate professor of clinical medicine in that institution, and physician to the Hospital for Sick Children, assistant-physician to the General Hospital, and physician to the Gravenhurst Sanitarium for Consumptives. He has for over twenty years taken a keen interest in military matters, and holds the rank of major in the Canadian Army Medical Staff, with command of No. 4 Bearer Company—one of the crack units of the Army Medical Corps.

GRAHAM CHAMBERS, B.A., M.B. (TOR.),
Professor of Physics, Chemistry, and Toxicology; Director of Chemical Laboratory.

Professor Chambers was born in Oxford County, Ontario, and educated at St. Catharine's and Hamilton Collegiate Institutes and at the University of Toronto. During his university career he devoted most of his study to natural sciences and mathematics, and in both subjects took a very high stand, receiving several scholarships and medals, including the Governor-General's medal for the double-honour course. He graduated B.A. in 1886, and was appointed Fellow in Chemistry, which he remained for three years, at the same time pursuing the study of medicine. In 1889, he graduated in medicine at Toronto University, receiving gold medal for general proficiency and the Starr silver medal for special subjects. He then spent a year in Germany, and began the practice of medicine on his return. In 1891 he was appointed to his present position in the O.C.P. He is also professor of dermatology and associate professor of clinical medicine at the Women's Medical College, Toronto; lecturer in clinical medicine, Toronto University; and professor of materia medica and therapeutics, Ontario Veterinary College, Toronto.

W. B. KENDALL, PHM.B.,
Demonstrator in Microscopy.

Mr. Walter B. Kendall, who conducts under Prof. Fotheringham's supervision the practical demonstrations in microscopy and pharmacognosy, and assists the Professor generally, is an Ontario College of Pharmacy graduate, being of the 1897 class. He also holds the degree of Bachelor of Pharmacy, and is a highly esteemed teacher.

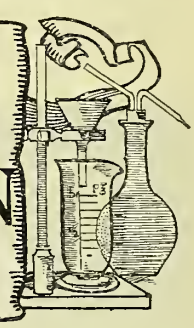
FOR A CHEMIST'S ADVERTISEMENT.

A Cough of settled and regular character remonstrated with a Sneeze on the unseemly violence and spasmodic nature of his efforts. "Hush, hoosh!" answered the Sneeze. "I carry off my master's threatening cold and give him loud warning. You are often unnoticed and neglected, and may carry off your mistress, if she does not give you more attention."—*Britannia.*

A BERLIN COMMERCIAL TRAVELLER has been heavily fined at Moutier, Switzerland, for having unnecessarily rung up a pharmacist at night by way of a joke.

EDUCATIONAL INFORMATION

RESPECTING PHARMACY & THE ALLIED PROFESSIONS



General Education.

THE Preliminary examinations of the various branches of medicine (pharmacy included) and science are now so similar that it may be said that the tests for admission to these callings are practically the same. The knowledge required is such that any boy or girl of 15 or 16 and of fair intelligence need have no fear of passing after a reasonable amount of preparation. The subjects cover English, Latin, arithmetic, algebra, Euclid, and a modern foreign language.

The Pharmaceutical Preliminary

may be taken as the minimum extent of the requirements in this direction. Formerly the Pharmaceutical Society of Great Britain conducted this examination, but since July, 1900, this has been abolished, and the Society simply accepts the certificates of other examining bodies as under:—

University of Oxford.—Junior or Senior Local examination. Responsions.

University of Cambridge.—Junior or Senior Local examination. Higher Local examinations. Previous examination.

University of Durham.—Junior or Senior Local examination. †Preliminary examination in Arts.

University of London.—Matriculation examination.

Victoria University.—*Entrance examination in Arts of the Faculty of Medicine. Preliminary examination.

University of Edinburgh.—*Junior or Senior Local examination. Preliminary examination for Graduation in Medicine and Surgery. Preliminary examination for Graduation in Arts or Science.

University of Aberdeen.—*Junior or Senior Local examination. Preliminary examination for Graduation in Medicine or Surgery. Preliminary examination for Graduation in Arts or Science.

University of Glasgow.—Preliminary examination for Graduation in Medicine or Surgery. Preliminary examination for Graduation in Arts or Science.

University of St. Andrews.—Preliminary examination for Graduation in Medicine or Surgery, or Arts or Science.

University of Dublin.—Public Entrance examinations.

Royal University of Ireland.—Matriculation examination.

University of Wales.—Matriculation examination.

Scotch Education Department.—The Honours and First-grade and Lower-grade Leaving Certificates.

Intermediate Education Board for Ireland.—Senior, Middle, and †Junior Certificates.

Central Welsh Board.—Honours, Senior, and Junior Certificates.

†Educational Institute of Scotland.—Preliminary Medical examination.

Oxford and Cambridge Schools' Examination Board.—Examination for Higher or Lower Certificate.

College of Preceptors.—Examination for a First or Second Class Certificate.

* Those marked with an asterisk are now obsolete.

† The certificates which the Board of Examiners for England and Wales have recommended to the Council to be discontinued are indicated by a dagger.

The Board of Examiners for England and Wales has recommended the following to be added to the list:—

University of Durham.—Certificate of Proficiency examination.

University of Birmingham.—Matriculation examination.

Scotch Education Department.—A pass in the Honours, First Grade, or Lower Grade of the Leaving Certificates examination.

These alterations, it should be noted, have only so far been recommended by one of the Boards. The Scotch Board and the Council are to have their say before they can become law, but at the same time it is well to note what *may* be law before very long. The certificates down to College of Preceptors are all accepted at present.

Certificates which are accepted by the Scotch Universities for registration as medical students may be received by the Registrar for registration as "Apprentices or Students."

Certificates of having passed an examination of a legally constituted examining body not specified in the above list may be submitted for the consideration of the Boards of Examiners and the approval of the Council, and each individual case will be decided on its merits.

The six subjects must have been passed at not more than two examinations of the same examining body, except in the case of certificates which are accepted by the Scotch Universities for registration as medical students. The certificate must be sent to the Registrar, Mr. R. Bremridge, 17 Bloomsbury Square, London, W.C., accompanied by the fee of 2*l.* 2*s.*

The simplest of all these examinations appears to be that of the College of Preceptors for a second-class certificate, and next to that are the junior locals of the Universities. In Scotland all lads who have been attending secondary schools possess one or more Lower-grade Leaving certificates, but very few of these have certificates to cover the six subjects required by the Society. This can now be remedied by taking the balance of the subjects at a Scotch University Preliminary examination.

College of Preceptors' Examinations

for Second-class certificates are held four times a year—viz. the General examination in July and December, and the "Professional Preliminary" examination in March and December. They are held in London and at various local centres, a list of which will be supplied by Mr. C. R. Hodgson, B.A., Secretary of the College of Preceptors, Bloomsbury Square, London, W.C., on application. For the July and December examinations the fee is 10*s.* 6*d.*, and six weeks' notice is necessary; for the March and September examinations thirty days' notice must be given, and the fee is 25*s.* At the provincial centres a local fee is charged to cover expenses. Pharmaceutical candidates may confine themselves to the six subjects prescribed by the Society, and may take them in two (not more) examinations. The following are the subjects:—

1. English.—Candidates may take either (*a*) a paper on general English grammar and analysis of sentences, or a paper on one of the following books: In July and December, 1902, (*b*) Shakespeare's "Julius Cæsar," Acts i., ii., and iii.; (*c*) Shakespeare's "Midsummer Night's Dream," Acts i. ii., and iii.; (*d*) Scott's

"Marmion," Cantos i., ii., and iii. (including introduction to first canto; (*c*) Scott's "Lady of the Lake," Cantos i., ii., and iii.

In September, 1902, and March, 1903, (*b*) Shakespeare's "Julius Cæsar," Acts, i., ii., and iii., (*c*) Scott's "Marmion," Cantos i., ii., and iii., and introduction to Canto i.

In each case with analysis of simple sentences and easy complex sentences, and grammatical and other questions based on the text. [More marks will be assigned to the papers which include a set book than to the general paper.] All candidates will be required to write a short English essay, and to paraphrase a passage of poetry, and bad spelling means rejection.

2. Latin.—Candidates may choose between an "unseen" translation and *one* of the following books (July and December, 1902): Cæsar, "Gallic War," Books I. and II., Virgil, "Æneid," Book V., 1-484; (September, 1902, and March, 1903), Cæsar, "Gallic War," Book II., Virgil "Æneid," Book V., 1-484. Each paper will contain (*a*) Passages for translation into English, including, in the case of papers on set books, at least one "unseen passage"; (*b*) Grammar and questions arising out of the books set for translation into English; (*c*) Simple English sentences for translation into Latin. Candidates must satisfy the examiner in at least two of the three divisions (*a*), (*b*), and (*c*).

3. French or German.—(*a*) Translation from the foreign language; (*b*) Grammar; (*c*) Translation into the foreign language. Candidates must satisfy the examiner in at least two of the three divisions (*a*), (*b*), (*c*).

4. Arithmetic.—Simple questions on the metric system, but *excluding* cube root, problems on rate and time in interest, compound interest, and stocks.

5. Algebra.—Simple equations, fractions, and easy quadratic equations of one unknown quantity.

6. Euclid.—Book I., with *either* Book II. or Props. 1 to 19 of Book III., or the subjects treated therein with riders.

The papers set at previous examinations may be had of Mr. Hodgson, 89 Farringdon Street, E.C., price, by post, 7*d*.

Educational Institute of Scotland.

Examinations are held in Edinburgh, Glasgow, Aberdeen, Dundee, and Dumfries, in March (or April), July, and September of each year. The following are the subjects:—

Compulsory, in which every candidate must pass:—

1. English.—Dictation, composition, parsing, and derivation. Outlines of British history. General geography of the world, with detailed geography of British Isles and British colonies.

2. Latin.—Grammar, Cicero, "Pro Archia," and Virgil, "Æneid," Book VI., lines 1-402, translation of passages not taken from specified authors, and composition in Latin.

3. Mathematics.—Arithmetic, common rules, and vulgar and decimal fractions. Algebra, up to and including simple equations. Geometry Euclid, Books I. to III., with deductions.

Optional, one of which must be taken:—

French.—Grammar, translation of English into French, and French into English.

German.—Grammar, translation of English into German, and German into English.

Defective spelling in any paper will involve failure.

Entry-forms, to be had from Dr. A. Mackay, 40 Princes Street, Edinburgh, to be sent with fee (1*l*.) five days prior to each examination.

London Matriculation Examination.

This examination is largely sought after for various reasons. It is a stiff examination, and one which confers some credit on the student who passes it; it is also accepted as evidence of sound education, as a preliminary test by all qualifying bodies in art and science, except the Universities of Cambridge, Dublin, and Oxford.

The examination is held twice yearly—on the second Mondays in January and June. Candidates must apply to the Principal, University of London, South Kensington, S.W., for a form of entry, on or before November 25 or April 25, which is to be returned by December 1 or May 1 for the January or June examinations respectively. Candidates must be 16 years of age, and must pay a fee of 2*l*. The same amount (2*l*.) has to be paid for every subsequent examination. The examination is conducted by means of printed papers, but the examiners are at liberty to put *viva voce* questions at their discretion—rarely, if ever, done. Three hours is allotted to each paper, the subjects being as follows:—

I. Latin (two papers).—Translation from prescribed books (January, 1903, Ovid, "Tristia," I. and III.; June, 1903, Livy, Book XXI.), with questions in grammar, history, and geography arising out of them. Second paper—translation of sentences, grammar, &c.

II. English.—Grammar and composition, elementary history of the language, and literature (one paper).

History of England to the end of the seventeenth century, with the geography relating thereto (one paper).

III. Mathematics (two papers).

(*a*) *Arithmetic.*—Proportion, vulgar and decimal fractions, square root, &c.

(*b*) *Algebra.*—Addition, subtraction, multiplication, division. Reduction and multiplication of algebraical fractions. Arithmetical and geometrical progression. Simple and easy quadratic equations, with questions involving their use.

(*c*) *Geometry.*—Euclid, Books I. to IV., and simple deductions.

IV. General Elementary Science (two papers).—Elementary physics, heat, light and electricity, elementary chemistry.

V. Optional Languages or Sciences (one paper).—*One* of the following at the option of the candidate: Greek, French, German, Sanskrit, Arabic, chemistry, mechanics, sound, heat and light, magnetism and electricity, botany. (The optional science papers are more advanced than those in Section IV., which are compulsory. The science or language selected in Section V. must be stated on the entry-form.)

The results are announced five weeks later, in three divisions—Honours, Firsts, and Seconds. Any candidate obtaining a place in the Honours division in January shall be admissible to the Intermediate examination in arts or science in the following July.

The examination is held in London and in certain towns in the provinces. Provincial candidates have to pay a local fee of 1*l*. to 2*l*. in addition to the examination-fee. In January, 1903, the examination will be held at Birmingham, Bristol, Cardiff, Glasgow, Leeds, Newcastle-on-Tyne, Nottingham, Plymouth, and Portsmouth.

Important Note.—Revised regulations have just been issued, providing for an extra examination on September 15, which is to be held in London only. That on September 15, 1902, will be under the new regulations, that in January, 1903, under the *old* regulations, that in June, 1903, under both old and new regulations, and thereafter under the new regulations only. The new syllabus is as follows:—

I. English.—One paper of three hours. Composition, *précis* writing, paraphrase, analysis, salient points in English history and general geography.

II. Elementary Mathematics.—Two papers of three hours each, including:—*Arithmatic*: Whole numbers, vulgar and decimal fractions, metric system, approximations to a specified degree of accuracy, contracted methods of multiplication and division of decimals, ratio and proportion, percentage, averages, practical applications. *Algebra*: Symbolic expression, algebraic laws, simple binomial or quadratic expressions, equations of the first and second degree, square root, arithmetic and harmonic progression, geometric progression. *Geometry*: Euclid, Books I. to IV., with simple deductions.

III. Latin, or elementary mechanics, or elementary physics (heat, light, sound), or elementary chemistry, or elementary botany. One paper of three hours on each subject.

IV. and V. Two of the following subjects, neither of which has already been taken under Section 3. One paper of three hours in each subject. If Latin be not taken, one of the other subjects selected must be another language from the list, either ancient or modern: Latin, Greek, French, German, Arabic, Sanskrit, Spanish, Portuguese, Italian, Hebrew, ancient history, modern history, logic, physical and general geography, geometrical and mechanical drawing, mathematics (more advanced), elementary mechanics, elementary chemistry, elementary physics (heat, light, and sound), elementary physics (electricity and magnetism), elementary biology (botany), elementary biology (zoology).

Sundry rules have been issued as to the time of appearance for examination in the various subjects, for which we refer prospective candidates to the "Revised Regulations for Matriculation," which, together with the old regulations, can be had from the Principal, University of London, South Kensington, S.W. In the new regulations the "Honours" pass is done away with, and successful candidates have their names published in alphabetical order in First and Second divisions only.

Oxford Local Examination.

The examinations (Senior and Junior) are held yearly at centres appointed by the delegacy, a list of which is given in the *Regulations*, to be obtained from the Secretary, Local Examination Offices, Merton Street, Oxford. The fee is 1*l*., and at any centre, except Oxford, there is an additional local fee. The examination comprises English, Latin, French, German, arithmetic, algebra, and Euclid, and all

candidates must pass in Scripture-knowledge before a certificate is granted, unless the parents or guardians, or, in the case of candidates over 21, the candidates themselves, object.

Cambridge Local Examinations.

These examinations are run on much the same lines as the Oxford Local, the Secretary of the Syndicate being Dr. J. N. Kynes, Syndicate Buildings, Cambridge. The Oxford and Cambridge local examinations are popular with schoolmasters in England, as a test for educational progress, and are seldom taken advantage of by private students. The Senior local is almost equal to the Matriculation examination of the London University, and the Higher local certificate is much valued for scholastic purposes. An examination ("Oxford and Cambridge local") is held by a combined board of the Universities. Parents who have children at school would do well to encourage them to take certificates of this nature as part of their school-work. The most useful book for intending Preliminary candidates is Dodd's "Complete Guide to the Preliminary Examinations" (*C. & D.*), price 2*s.* 6*d.*

The Medical Preliminary Examination.

The Preliminary examination of the General Medical Council is a well-recognised test, being accepted by the Institute of Chemistry, the Royal College of Veterinary Surgeons, and the Pharmaceutical Societies of Great Britain and Ireland. The Council does not itself conduct the examination, but accepts certificates of approved examining bodies, provided the examinations cover the following subjects:—

(*a*) English (Grammar, Paraphrasing, Composition, questions on English History and Geography).

(*b*) Latin (Grammar, Translation into English from unprescribed Latin books, Translation into Latin of a continuous English passage, and of short idiomatic English sentences).

(*c*) Mathematics (Arithmetic; Algebra, including easy quadratic equations; Geometry, including the subject-matter of Euclid, Books I., II., III., and simple deductions).

(*d*) One of the following subjects:—

(*α*) Greek (Grammar, Translation into English from unprescribed Greek books, Translation into Greek of short idiomatic English sentences); *or*

(*β*) A Modern Language (Grammar, Translation into English from unprescribed books, Translation of a continuous English passage, and of short idiomatic English sentences).

The Council also adds the following clause:—

A degree in Arts of any University of the United Kingdom, or of the colonies, or of such other Universities as may be specially recognised from time to time by the Medical Council, shall be considered a sufficient testimonial of proficiency.

An Arts degree, however, is not accepted by the Pharmaceutical Society of Great Britain, unless it includes German or French, or unless one of these is covered in a second examination by the body which granted the degree. The following is a list of the Medical Council's recognised examinations for the United Kingdom. It must be borne in mind that all examinations must cover the required subjects, and where the words "at one time" appear, all the subjects must be passed at one examination; where this is not stated they may be passed one or more at a time:—

University of Oxford.—Junior Local examination. Senior Local examination. Responsions (certificate to be supplemented by others showing that the required mathematical subjects have been passed). Moderations.

University of Cambridge.—Junior Local examination. Senior Local examination. Higher Local examination. Previous examination. General examination.

Oxford and Cambridge Schools' Examination Board.—Lower Certificate examination (at one time). Higher Certificate examination.

University of Durham.—Examination for Certificate of Proficiency (at one time). Senior Local examination.

University of London.—Matriculation examination.

Victoria University.—Preliminary examination.

University of Birmingham.—Matriculation examination.

University of Wales.—Matriculation examination (at one time).

Universities of Scotland.—Preliminary examination of the Joint Board of Examiners of the Scottish Universities for Graduation in Medicine and Surgery. (To be passed at one or not more than two examinations.) Preliminary examination of the Joint Board of Examiners of the Scottish Universities for Graduation in Arts or Science.

University of St. Andrews.—Final examination for the diploma of LL.A.

University of Dublin.—Principal Public Entrance examinations (at one time). Examinations for the first, second, third, or fourth year in Arts. (Certificate to be signed in the approved form by the Medical Registrar of the University.)

Royal University of Ireland.—Matriculation examination.

Scotch Education Department.—Leaving Certificate Examinations: passes in Lower grade. (To be passed at one or not more than two Examinations.) Leaving Certificate Examinations: passes in Higher-grade or Honours.

Intermediate Education Board of Ireland.—Middle-grade examination (at one time). Senior-grade examination.

Central Welsh Board.—Senior Certificate examinations.

College of Preceptors.—Examinations for First-class Certificate (to be passed at one or not more than two examinations). Preliminary examination for Medical Students (at one time).

Educational Institute of Scotland.—Preliminary Medical examination (at one time).

Royal Colleges of Physicians and Surgeons in Ireland.—Preliminary examination (at one time).

In addition to the foregoing, certificates of equivalent examinations are accepted from the Universities of Malta, Calcutta, Madras, Bombay, Punjab, Allahabad, Ceylon, Montreal, Quebec, Ontario, Manitoba, New Brunswick, Nova Scotia, Newfoundland, Melbourne, Sydney, Adelaide, Tasmania, Cape of Good Hope, Otago, New Zealand, Barbados, certain foreign universities, and the secondary education certificate of the Egyptian Government.

What to do.

The selection of a Preliminary examination resolves itself into three distinct lines—first, if a person wishes to enter pharmacy, and nothing else, his easiest method is to pass the College of Preceptors' examination, or, if in Ireland, the Preliminary examination of the Pharmaceutical Society there; secondly, if there is any likelihood of making pharmacy merely the stepping-stone to medicine or higher applied science, a more searching examination, such as the London Matric., should be passed; and thirdly, if medicine, dentistry, or veterinary surgery, is the goal, an examination approved by the Medical Council should be selected. For medicine, it is especially to be noted that all the Universities and some of the licensing bodies have their own regulations as to Preliminary examination, independent of the Medical Council.

If the student is fresh from school and has no definite idea as to his ultimate vocation, it is, of course, wisest to pass the most searching examination, thus qualifying himself for any of these professions, and avoiding having to pass further examinations in school subjects when these subjects have been more or less forgotten.

Pharmaceutical Education and Examination

Great Britain.

THE granting of all kinds of pharmaceutical qualifications in Great Britain is in the hands of the Pharmaceutical Society, 17 Bloomsbury Square, London, W.C., which is empowered by the Pharmacy Act, 1868, to examine and register all those whose desire is to keep open shop for the compounding, dispensing, or retailing of poisons, or to use the title of "chemist and druggist," "pharmacist," "pharmaceutical chemist," or any portion or combination of such titles. In order to obtain registration the following conditions must be complied with:—

1. Registration as an apprentice or student of pharmacy, after passing a recognised Preliminary examination (see page 432). Fee for registration, 2*l.* 2*s.*

2. Employment as a student of pharmacy for three years, or otherwise for that period to be practically engaged in the translation and dispensing of prescriptions.

3. To pass the Minor examination, having first satisfied the Registrar by certificates that the second condition has been fulfilled, and that the age of 21 years has been reached. The fee for the examination is 10*l.* 10*s.*, and for re-examination 3*l.* 3*s.* each occasion.

Examinations are held in London and Edinburgh, there being two Boards of Examiners, for England and Scotland respectively. These Boards meet to conduct the Minor examination (for the title "chemist and druggist") and Major (for the title "pharmaceutical chemist") in January, April, and July, also in the end of September or beginning of October. Candidates must give notice and pay the fee to the Registrar, Mr. Richard Bremridge, 17 Bloomsbury Square, London, W.C., on or before the 15th day in March, June, September, or December, stating at the same time whether they wish to be examined in London or Edinburgh. A printed form of application can be obtained from the Registrar. The candidate would do well to write to the Registrar at least a month before entering, because everything should be well in order beforehand; if any detail be incomplete on the 15th of the month before the examination is held the candidate will have to wait another three months. Certificates of having passed the Preliminary examination, together with the necessary fee of 2*l.* 2*s.* for registration as an apprentice or student, should be submitted at least three months before entering for the Minor. This is most important and should not be overlooked. Those who study at a School of Pharmacy should register before entering the school, and thus make sure that their Preliminary certificates are in order. The Council of the Pharmaceutical Society recommends that all candidates before presenting themselves for examination should receive a systematic course of instruction occupying a period of not less than six months, and that such a period of study should include *at least* sixty lectures in chemistry, eighteen hours' work per week at practical chemistry, forty-five lectures and demonstrations in botany, and twenty-five lectures and demonstrations in materia medica.

The following are the official particulars of the

MINOR EXAMINATION.

Botany.

The candidate is required to possess a practical knowledge of—

(*a*) Classification. The main divisions of the vegetable kingdom and their most important characteristics: Thallophyta, Bryophyta, Pteridophyta, Phanerogamia. The following Subclasses and Natural Orders of the Angiosperms: Thalamifloræ, Calycifloræ, Corollifloræ, Monochlamydeæ, Petaloideæ, Spadicifloræ, and Glumifloræ; Ranunculaceæ, Cruciferæ, Rosaceæ, Leguminosæ, Umbelliferæ, Compositæ, Solanaceæ, Liliaceæ. The description of flowering plants in technical language. The candidate is also required to recognise any of the plants in the following list:—

List of Plants for Recognition.

Aconitum Napellus, Papaver Rhœas, P. somniferum, Brassica alba, B. nigra, Cochlearia Armoracia, Althæa officinalis, Ruta graveolens, Cytisus Scoparius, Rosa canina, Prunus laurocerasus, Bryonia dioica, Conium maculatum, Fœniculum capillaceum, Œnanthe crocata, Sambucus nigra, Valeriana officinalis, Anthemis nobilis, Matricaria Chamomilla, Taraxacum officinale, Menyanthes trifoliata, Atropa Belladonna, Datura Stramonium, Hyoscyamus niger, Solanum Dulcamara, Digitalis purpurea, Lavandula vera, Mentha piperita, M. viridis, M. Pulegium, Rosmarinus officinalis, Daphne Laureola, D. Mezereum, Quercus Robur, Ulmus campestris, Salix alba, Colchicum autumnale, Avena sativa, Hordeum distichon, Triticum vulgare, Pinus sylvestris, Juniperus communis, J. Sabina, Taxus baccata, Aspidium Filix-mas.

(*b*) Morphology, including Anatomy. The external form of plants: Thallus, stem, root, leaves, inflorescence, flower, fruit. The distinguishing features and common modifications of these structures. Principles of branching and different kinds of branch systems. Phyllotaxis, including vernation. The different kinds of buds and their arrangement on the stem. A general acquaintance with the elements of plant-anatomy; the vegetable cell, tissues—*e.g.*, merismatic, epidermal, fundamental and vascular. The characteristic anatomical features of roots, stems, and leaves of flowering plants and ferns. The candidate is expected to recognise by means of the microscope, and describe sections illustrating the above plant-structures. The method of increase in thickness of stems and roots, and the characters of primary and secondary tissues. The characters of the flowers. The methods of pollination; self- and cross-fertilisation. The formation of the seed and germination.

(*c*) Physiology. The *elementary facts* in connection with the physiology of plants, including the nature and source of the food of plants, and the manner in which the raw materials are elaborated. Chlorophyll, its manner of occurrence in the plant; its functions and the conditions under which it discharges them. Reserve materials, their nature, mode of deposition, and the manner in which they are utilised by the plant. The manner in which plants grow, and the conditions necessary for the growth of a plant. The manner in which plants respond to external stimuli—*e.g.*, light, gravity, &c. Sexual and asexual reproduction.

Chemistry and Physics.

The candidate is expected to possess an *elementary* knowledge of the following subjects:—

(*a*) The law of the conservation of energy; the law of gravitation; the balance; specific gravity; atmospheric pressure; pressure of aqueous vapour; the barometer, air-pump, and syphon; the law of Boyle; temperature; thermometers; the law of Charles; the law of gaseous diffusion; V. Meyer's method for determining vapour-densities.

(*b*) The chief characteristics of chemical action, the distinction of elements and compounds; the laws of chemical combination by weight and volume; the hypothesis of Avogadro; atomic weight and molecular weight; chemical formulæ and nomenclature; valency; the distinction between metals and non-metals.

(*c*) The general characters of the non-metals; the chief methods of preparation and the typical reactions of the following non-metallic elements and compounds:—Hydrogen, oxygen, ozone water, hydrogen peroxide; chlorine, bromine and iodine, and their compounds with hydrogen and oxygen; fluorine, hydrofluoric acid, nitrogen, ammonia, the oxides of nitrogen, nitrous acid nitric acid; sulphur, hydrogen sulphide, sulphurous and sulphuric anhydrides; and acids, thiosulphuric acid; phosphorus, phosphine, the oxides and oxy-acids of phosphorus, the chlorides of phosphorus; silicon, silica, fluoride of silicon, silicofluoric acid; boron, boric acid. The usual impurities in such of the above-named substances as are included in the British Pharmacopœia.

(*d*) The general characters and classification of the metals, and the general methods of forming oxides and salts; the sources, the usual methods of extracting, and the chief properties of, the undermentioned metals, also the modes of preparation, properties, adulterations, and contaminations of their principal compounds: Potassium, sodium, ammonium, lithium, barium, strontium, calcium, magnesium, zinc, aluminium, iron, chromium, manganese, nickel, cobalt, arsenium, antimony, tin, copper, bismuth, lead, silver, mercury, gold and platinum.

(*e*) Carbon, its oxides, cyanogen, hydrocyanic acid, cyanides, ferrocyanides and ferricyanides, oxalic acid. The chief methods of preparing methane, ethane, ethylene, acetylene, methyl and ethyl alcohols, formic and acetic aldehydes and acids, ethyl acetate, acetamide, olein, glycerol, benzene, phenol, nitro-benzene, aniline, benzoic acid, salicylic acid, hydrate of chloral, chloroform, iodoform, ether; the principal properties, reactions, and mutual relations of these compounds. The candidate will also be expected to posses a general knowledge of the methods of estimating carbon, hydrogen, oxygen and nitrogen in organic compounds, and of obtaining molecular formulæ.

Note.—The candidate is expected to solve simple problems relating to the weight and volume, under different conditions of temperature and pressure, of elements and compounds concerned in chemical reactions.

Chemistry.—*Practical Examination.*

The candidate is required to determine the sp. gr. of liquids and solids, and to be familiar with the general construction and use of the thermometer and barometer; to recognise by chemical tests the more important non-metallic elements and compounds, as well as the metals and salts indicated in the foregoing list; to detect the chief impurities in those that are included in the British Pharmacopœia; to recognise by their physical properties those which possess well-defined characteristics. To analyse a mixture containing not more than two metals and two acid radicles; to identify by chemical tests the following organic compounds: hydrocyanic acid, cyanides, ferrocyanides, ferricyanides, oxalates, acetates, tartrates, citrates, salicylates, starch cane-sugar, grape-sugar, salicin, quinine, morphine, strychnine, and their salts; and to detect the impurities in such as are included in the British Pharmacopœia; to perform those volumetric determinations which are described in the British Pharmacopœia. To understand the principles of volumetric analysis, and to prepare, standardise, and use volumetric solutions; to be familiar with the construction and use of the balance, and to have a practical knowledge of the Imperial and metric systems of weights and measures; to quantitatively determine the total alkaloids in cinchona-bark and its official preparations, in the liquid extract of belladonna and its preparations, and in the liquid extract of ipecacuanha; also the strychnine in the extract, liquid extract, and tincture of nux vomica; the morphine in opium and its extract, liquid extract and tincture; and the resin in tincture of jalap; to have a practical acquaintance with the methods of preparing the more important inorganic substances including the non-metals and their compounds, and such metallic compounds as are included in the British Pharmacopœia, and also the following organic compounds — ether, chloroform, amyl nitrite, ethyl acetate, and hydrocyanic acid—so that he may be able to explain to the examiner the operations involved in their preparation, and, if called upon, to perform the operations or certain stages of them himself.

Materia Medica.

The candidate is required to recognise specimens of any crude drugs mentioned in the British Pharmacopœia or in the annexed list, as well as their principal commercial varieties; to be acquainted with their botanical (or zoological), geographical, and commercial sources, the natural orders to which they belong, as well as the modes of collection and preparation for the market; to indicate the morphological nature of such as are organised, and the mode of formation of such as are unorganised; to correctly describe them, and to point out diagnostic characters either chemical or physical, the latter as far as they can be ascertained by the use of a lens. To name the chief active constituents of official drugs, to know the proportion present in good samples of the more important of them, and to possess a practical knowledge of any pharmacopœial tests or processes of assay applied to crude drugs or their official products.

Roots.—Althæa officinalis, Inula Helenium, Alkanna tinctoria, Bryonia dioica.

Rhizomes, &c.—Helleborus niger, Sanguinaria canadensis, Iris florentina, Veratrum album, Acorus Calamus, Agropyron (Triticum) repens, Veratrum viride.

Barks.—Berberis vulgaris, Erythrophlœum guineënse, Ulmus campestris, U. fulva, Cinnamomum Cassia, Coto, Nectandra Rodiæi, Canella alba, Cinchona Calisaya, Cinchona lancifolia, Pinus Larix, Quercus Robur, Rhamnus Frangula.

Leaves.—Aconitum Napellus, Piper augustifolium, Nicotiana Tabacum.

Herbs, &c.—Grindelia squarrosa et robusta, Marrubium vulgare, Solanum Dulcamara, Euphorbia pilulifera, Convallaria majalis, Lactuca virosa, Ruta graveolens, Juniperus Sabina.

Flowers.—Calendula officinalis, Pyrethrum cinerariæfolium, &c., Arnica montana, Rosa centifolia.

Fruits.—Punica Granatum, Cuminum Cyminum, Laurus nobilis, Piper longum, Vanilla planifolia, Ægle Marmelos.

Seeds.—Theobroma Cacao, Paullinia sorbilis (Guarana), Trigonella Fœnum-græcum, Dipteryx odorata, Pyrus Cydonia, Strychnos amara, Hyoscyamus niger, Amomum Melegueta, Areca Catechu, Hordeum distichon.

Hairs or Glands.—Mucuna pruriens, Mallotus philippinensis.

Juices, &c.—Black Catechu, Lactucarium, Cape Aloes, Natal Aloes, Guttapercha, Manna.

Gum-Resins.—Olibanum, Euphorbium.

Resins.—Sandarac, Dragon's Blood, Shellac, Mastiche, Elemi.

Cryptogamic Substances.—Lycopodium, Fucus vesiculosus, Chondrus crispus, Cetraria islandica.

Animal Substances.—Mylabris Cichorii, Mylabris phalerata, Castoreum.

Pharmacy.

The candidate is required to possess a general knowledge of the following branches:—

(*a*) Operations requiring the use of heat. Evaporation, with particular reference to the preparation of extracts and inspissated juices; special characters and modes of preparing the various classes of extracts; influence of surface, temperature and pressure upon the rate of evaporation; water, steam, and sand baths; distillation, ordinary, fractional, and destructive, distinctive characters and objects of each; official preparations illustrating the various kinds of distillation, apparatus employed, the retort and receiver, still and worm, Liebig's condenser, principles on which they are constructed and used. Sublimation: its objects and applications in pharmacy; official products of sublimation, calcination, and fusion. Desiccation; temperature best suited for drying particular drugs, loss in drying vegetable drugs, forms of drying-ovens, principles on which they are constructed and used.

(*b*) Disintegration of solid substances; cutting, bruising, and pulverisation; apparatus employed, principles indicating which is to be adopted in particular instances; methods for controlling the degree of comminution, sieves and sifting, trituration, levigation, elutriation, granulation, including methods for producing certain chemicals as fine powders, small crystals, scales, &c. Solution: its nature, solvent power of various menstrua, influences of (*a*) temperature; (*b*) state of division of the substance to be dissolved; (*c*) time; (*d*) position of the substance in the menstruum; lixiviation, infusion, digestion, and decoction; maceration, percolation, and displacement, principles on which the successful performance of these processes depends; form and materials for percolators and other vessels employed. Filtration, objects and methods, filtering media, means of expediting filtration; dialysis: its application in pharmacy, construction and use of the dialyser. Expression: methods of obtaining the juices from plants; recovery of the residual liquids from tincture marcs, &c.; screw, hydraulic, and other presses. The principles involved in the dispensing of medicines, particularly with reference to the best excipients and methods for forming pill-masses, the preparation and nature of emulsions, the most suitable emulsifying agents, and the best means of suspending insoluble substances in liquids.

The candidate is also required to show a general knowledge of the processes, and understand the principles of the processes, by which the official preparations belonging to the following classes are made: Collodions, confections, decoctions, dilute acids, extracts (solid and liquid), glycerins, infusions, juices, linimeuts, lotions, mixtures, ointments, pill-masses, plasters, powders (simple and compound), solutions, spirits, suppositories, syrups, tinctures, vinegars, waters, and wines. A knowledge of the proportion of active ingredient or crude material in official preparations containing aconite, antimony, arsenic, belladonna, Calabar bean, cantharides, chloral hydrate, chloroform, caustic potash and soda, colchicum, digitalis, elaterinum, ergot, iodine, iodoform, ipecacuanha, lead, mercury, nux vomica, opium, phosphorus, scammony, stramonium, squill, alkaloids, and alkaloidal salts.

The candidate is required:—

(*a*) To enumerate the poisons contained in Schedule A of the Pharmacy Act, 1868, and those since added thereto, in pursuance of the provision contained in section 2 of that Act, viz.:—

Poisous within Part I. of the Schedule.
Poisons within Part II. of the Schedule.

(*b*) To describe minutely the conditions required upon the sale *by retail* of poisons, both in Part I. and Part II. of Schedule A; and to write the proper entry required, accordiug to Schedule F of the Act, for the sale of a poison coming within Part I. of Schedule A.

(*c*) To state the conditions imposed on the sale of scheduled poisons *by wholesale and for export*; and upon the sale of a scheduled poison when forming an iugredient in a medicine dispensed.

The candidate is also expected to possess a knowledge of the conditions imposed on the sale of arsenic by the Arseuic Act.

Practical Pharmacy and Dispensing.

The candidate is required to conduct such operatious of the British Pharmacopœia, or such parts of them as may be practicable, involved in the processes for preparing collodions, confections, decoctions, dilute acid, extracts (solid and liquid), glycerins, infusions, juices, linimeuts, lotions, mixtures, ointments, pill-masses, plasters, powders (simple and compound), solutions, spirits, suppositories, syrups, tiuctures, viuegars, waters, aud wines.

To weigh, measure, and compound medicines; to write the directions in concise language in a *neat and distinct* hand; to finish and properly direct each package. [*In awarding marks in this subject, the time taken by the candidate in doing the work is taken into account.*]

Prescriptions.

The candidate is required to read, without abbreviatiou, autograph prescriptions; translate them into English; understand the grammatical construction of the Latin; and render a literal as well as an appropriate translation of the directions for use. To detect errors, discover unusual doses, and have a general knowledge of posology. To calculate percentages and other quantities occurring in prescriptions; also to render in good Latiu ordinary prescriptions written in English.

Candidates must not take into the examination-rooms or

laboratories any books or any notes or memoranda, whether written or in print.

Preparing for the Examination.

It is usual, although not compulsory, to take a course of study at a school of pharmacy, and with few exceptions all students attend a course similar to that recommended by the Council of the Pharmaceutical Society, and given in the early part of this article. But to become a thorough and therefore a successful pharmacist study must not be confined to the school. It should be started as soon as the requisite Preliminary examination has been passed, and carried right through apprenticeship. Every drug handled should be examined and studied, and its sources, properties, and dose studied afterwards from the book. Information picked up in this way is much more lasting than hours of reading. The British Pharmacopœia and Squire's "Companion" are in every chemist's shop, and we would recommend also either "Pharmacopedia" (an excellent all-round book for Minor and Major students, price 14*s.*) or Dr. William Murrell's "Aids to Materia Medica," published by Baillière in three small volumes at 2*s.* 6*d.* per volume, which gives much useful information. A very good start can be made with these works, and the student can build up his library gradually as he progresses. Money spent in good works of reference is never wasted, but the student should discriminate before buying, and should bear in mind that many such works become obsolete as soon as a new edition has been published. For guidance we give the following list:—

The British Pharmacopœia 1901. (Spottiswoode & Co.) 10*s.* 6*d.*
Squire's "Companion to the British Pharmacopœia." (J. & A. Churchill.) 12*s.* 6*d.*
White and Humphrey's "Pharmacopedia." (H. Kimpton.) 14*s.*
"The Art of Dispensing." (*C. & D.* office.) 5*s.* 6*d.*
Lucas's "Practical Pharmacy." (J. & A. Churchill.) 12*s.* 6*d.*
Ince's "Latin Grammar of Pharmacy." (Baillière.) 5*s.*
Green's "Manual of Botany. (J. & A. Churchill.) Vol. 1, 7*s.* 6*d.*; vol. 2, 10*s.* 6*d.*
Scott's "Introdnction to Structural Botany." (A. & G. Black.) 3*s.* 6*d.*
Bower's "Practical Botany for Beginners." (Macmillan & Co.) 3*s.* 6*d.*
Lowson's "Botany." (Clive & Co.) 6*s.* 6*d.*
Greenish's "Introduction to Materia Medica." (J. & A. Churchill.) 15*s.*
Attfield's "Chemistry." (Gurney & Jackson.) 15*s.*
Southall's "Organic Materia Medica." (J. & A. Churchill.) 4*s.* 6*d.*
Newth's "Inorganic Chemistry." (Longmans & Co.) 6*s.* 6*d.*
Perkin and Kipping's "Organic Chemistry." (W. & R. Chambers.) 6*s.* 6*d.*
Clowes and Coleman's "Elementary Practical Chemistry and Chemical Analysis." (J. & A. Churchill.) 3*s.* 6*d.*
Muter's "Analytical Chemistry." (Baillière.) 6*s.* 6*d.*
Everett's "Physics." (Blackie.) 3*s.* 6*d.*
Witley's "Chemical Calculations." (Longmans & Co.) 2*s.*
Dobbin's "Arithmetical Exercises in Chemistry." (J. Thin.) 1*s.*
Proctor's "Pharmaceutical Testing." (*C. & D.* office.) 2*s.* 6*d.*

Every opportunity for instruction, both practical and theoretical, should be seized, and systematic reading taken up. Then, when the mind is fairly well grounded in these subjects, a school may be attended, and the final preparation made for the examination. A good practical exercise which is of value in preparing for the examination is the Students Corner of The Chemist and Druggist, in which analytical competitions are conducted monthly by Dr. Leonard Dobbin. The experiences of study are detailed by a successful candidate in The Chemist and Druggist of January 25, 1902, while accounts of the examination itself may be found in the issues of January 18, April 26, July 19, and August 9, 1902.

The Major Examination.

The Minor qualification gives the holder the right to style himself "chemist and druggist," or "chemist," or "druggist," but not "pharmacist," "pharmaceutist," or "pharmaceutical chemist." For this there is a higher examination, not compulsory, it is true, but still the title is one which should be sought by anyone desiring to hold a high position in pharmacy. The examination is a more searching one, and although it only embraces chemistry, botany, and materia medica, it goes deeply into these subjects. It is written and practical, and lasts three days, being held in London and Edinburgh in the same months as the Minor examination.

The following is a synopsis of the subjects required for the Major examination:—

Botany.—Candidates should have a thorough knowledge of morphology, physiology, and histology, as well as classification. They are required to make and mount microscopic preparations illustrating vegetable structure, and to apply micro-chemical tests for plant-tissues.

Chemistry and Physics.—Candidates may be taken more fully in the Minor subjects, and are expected to have a good knowledge of the constitution of matter, heat, light, magnetism, electricity, chemical theory, and the classification, characteristics, and constitution of the carbon compounds, particularly cyanogen derivatives, hydrocarbons, and paraffin and benzene derivatives.

Practical work in this subject comprises the analysis of mixtures of three metallic salts; estimation of nitrogen in organic compounds; determination of melting and boiling points; gas-analysis by nitrometer; preparation of certain organic substances; recognition of pbarmacopœial chemicals; and generally the application of all B.P. chemical tests and assay processes, and the separation of alkaloids and glucosides; also the detection of methyl alcohol in galenical preparations.

Materia Medica.—Candidates must know how to estimate tbe value of important drugs, and to distinguish commercial varieties, and separate official active principles. Also to have a general acquaintance with the actnal constituents of all important drugs, discover adulterations, examine drugs microscopically, and so on.

Full details are given in tbe official syllabus, obtainable from the Secretary at Bloomsbury Square.

The fee is 3*l.* 3*s.*, and candidates must, of course, have passed the Minor examination. Some details of the actual examination appear in The Chemist and Druggist of July 12, 1902

Apothecaries' Assistants' Examination.

Under the Apothecaries Act, 1815, persons who act as assistants to licentiates of the Society of Apothecaries by compounding and dispensing medicines must obtain a certificate of qualification from the Society. This certificate is recognised by the Local Government Board as a qualification for Poor-law dispenscrships in England and Wales. Some Minor students, especially in London, use the examination as a sort of test of their knowledge before attempting the Minor, and lady dispensers have found it an easier and quicker way of qualifying thau the Minor. "*The certificate does not convey the right to assume any title on the part of the person to whom it is granted.*" The examination is held at the Apothecaries' Hall, Blackfriars, London, E.C., on the fourth Wednesday and following days of January, April, July, and October. The examination consists of two parts—the practical and the oral. The former, which commences at 10 A.M., comprises the compounding and dispensing of medicines, and the latter, commencing at 2 P.M., chemistry, materia medica, and pharmacy, and the translation of prescriptions. A candidate will be credited with any subject in which he may satisfy the examiners. The syllabus is as follows:—

Chemistry.

The general principles of chemistry. Meaning of chemical symbols and formulæ. Distinctive properties of acids, bases, and salts. The preparation and properties of the elements: oxygen, hydrogen, nitrogen, chlorine, bromine, iodine, carbon, sulphur, phosphorus, arsenic, and their more important compounds with oxygen and with hydrogen. Hydrochloric, nitric, and sulphuric acids, and their action upon the common metals, metallic oxides, and carbonates. The chemical composition of water and air. The preparation, properties, and tests of the following:—

Ammonium carbonate, chloride, and nitrate.
Sodium hydrate, borate, carbonate, bicarbonate, chloride, nitrate, sulphate, and sulpbite.
Potassium hydrate, carbonate, bicarbonate, bichromate, bromide, chlorate, cyanide, iodide, nitrate, and permanganate.
Calcinm oxide, hydrate, chloride, carbonate, and sulphate.
Magnesium, oxide, carbonate, and sulphate.
Alum.
Zinc oxide, carbonate, chloride, and sulphate.
Iron reduced, peroxide, protosulphate, persulphate, perchloride.
Lead metal, oxides, acetate, subacetate, and carbonate.
Silver metal, oxide, and nitrate.
Copper metal, nitrate, and sulphate.
Bismuth metal, oxide, nitrate, and carbonate.
Antimony oxide and chloride, and tartar emetic.
Mercury oxides and iodides, calomel and corrosive sublimate.

Alcohol, ether, acetic ether, chloral hydrate, chloroform, iodoform, glycerin, quinine, and strychnine.

Hydrocyanic, acetic, tartaric, and citric acids, and their common salts.

Candidates will be expected to have performed or to have witnessed experiments illustrating the principal properties of the substances mentioned in the syllabus.

Materia Medica and Pharmacy.

Candidates will be required to show a knowledge of the chemical and physical characters, the compositiou, and doses of the articles and preparations included in the British Pharmacopœia, 1898, and to *recognise* the followiug substances:—

Acidum arseniosum, acidum benzoicum, acidum carbolicum, acidum gallicum, acidum hydrocyanicum dilutum, acidum salicylicum, acidum tannicum, alumen, ammonii carbouas, ammonii chloridum, antimonium tartaratum, borax, calx chloriuata, carbo ligni, cupri sulphas, ferri et ammonii citras, ferri et quininæ citras, ferri carbouas saccharatus, ferri phosphas, ferri sulphas, ferri sulphas exsiccatus, ferrum redactum, ferrum tartaratum, hydrargyri iodidum rubrum, hydrargyri oxidum flavum, hydrargyri oxidum rubrum, hydrargyri perchloridum, hydrargyri subchloridum, hydrargyrum, hydrargyrum ammoniatum, iodum, magnesii sulphas, phosphorus, plumbi acetas, plumbi iodidum, plumbi oxidum, potassii bromidum, potassii chloras, potassii iodidum, potassii permanganas, potassii sulphas, potassii tartras acidus, sodii sulphas, sulphur sublimatum, sulphur præcipitatum, ziuci sulphas.

Æther, amyl nitris, chloral hydras, chloroformum, iodoformum, paraldehydum, spiritus ætheris nitrosi, spiritus rectificatus.

Aconiti radix, aloe barbadensis, aloe socotriua, aloinum, ammoniacum, araroba, asafetida, belladonnæ radix, calumbæ radix, camphora, cannibis indica, cantharis, catechu, ciuchonæ cortex, cascara sagrada, cocæ folia, colchici cormus, colocynthidis pulpa, conii fructus et folia, copaiba, cubeba, digitalis folia, elaterium, ergota, filix mas, gentianæ radix, glycerinum, guaiaci resiua, hyoscyami folia, ipecacuanhæ radix, jaborandi folia, jalapa, kino, myrrha, nux vomica, oleum morrhuæ, oleum riciui, oleum terebinthinæ, opium, physostigmatis semina, podophylli resiua, podophylli rhizoma, quassiæ lignum, quininæ sulphas, rhei radix, santoninum, scammoniæ resina, scammoniæ radix, scilla, seuegæ radix, senna alexandrina et indica, strophanthi semina.

Candidates are required to give notice to the Secretary of the Court of Examiners (Mr. Frank Haydon, L.R.C.P., Apothecaries' Hall, Blackfriars, E.C.), on a form to be obtained from him, fourteen days previous to the examination, and to pay the fee (5*l.* 5*s.*) by cheque or post-office order at the same time. Candidates must be 18 years of age, and must prove this by a certificate from parent, guardian, or nearest relative; they must also produce a certificate by a registered medical practitioner or a qualified chemist that they have received six months' instruction in practical pharmacy. The fee for re-examination is 2*l.* 2*s.*

Ireland.

Under the Pharmacy Act (Ireland), 1875 (amended by the Act of 1890) the control of examinations for the practice of pharmacy is in the hands of the Pharmaceutical Society of Ireland, whose headquarters are at 67 Lower Mount Street, Dublin. There are two grades of qualification—viz., (1) pharmaceutical chemists, who may sell poisons and compound prescriptions; and (2) registered druggists, who may sell and mix poisons, but must not compound prescriptions. Those of the latter class who have been in business before the Act are called "chemists and druggists." The following are the regulations for the title

Pharmaceutical Chemist.

(1) Candidates must pass a Preliminary examination as conducted by the Society, or its equivalent.

(2) Candidates must serve four years as apprentice or assistant with a pharmaceutical chemist in Ireland or Great Britain, or chemist and druggist (Great Britain), or apothecary, or four years with an Irish druggist and two years with a pharmaceutical chemist. (N.B.—Service must be with an individual or individuals, not a limited company.

(3) Candidates must produce evidence of instruction in botany, practical chemistry, and materia medica at an approved school or schools.

(4) They must be 21 years of age, and

(5) Pass the Licence examination.

The Irish qualification does not entitle its holder to practise in Great Britain, nor is the English or Scottish qualification recognised in Ireland.

Preliminary Examination.

This is conducted by the Society's examiners (Dr. James Henry and Mr. D. Sullivan, M.P.S.I.), and is held on the first Tuesday of January, April, July, and October, at the Society's House in Dublin. It includes Latin, English, arithmetic, algebra, geometry, elementary theoretical chemistry, and also one of the following: Elementary physics and mechanics, the rudiments of botany, French, German, or other modern language. The fee is 2*l.* 2*s.*, and must be lodged in the Bank of Ireland and a receipt forwarded to the Secretary (Mr. Arthur T. Ferrall, 67 Lower Mount Street, Dublin), together with an application to be examined, at least fourteen clear days before the date of the examination. A rejected candidate may present himself again after six months on payment of a further fee of 10*s.* 6*d.* The following is the official syllabus of the examination:—

Latin.—To translate into English and parse senteuces from a Latiu author:—Cæsar's "Commentaries," First Book, or Virgil's "Æneid," First Book. To translate an easy [Euglish] sentence iuto Latin. [Mimimum pass, 20 per cent.]

English.—English grammar, including orthography and parsing. To write ou a subject selected by the examiner; and to write from dictation. [Minimum pass, 50 per ceut.]

Arithmetic.—The first four rules, simple proportiou, vulgar fractions, aud decimals. To describe the British weights and measures aud the metric system. [Miuimum pass, 50 per ceut.]

Algebra.—As far as simple equatious, inclusive. [Miuimum pass, 20 per cent.]

Geometry.—Including the first book of Euclid. [Minimum pass, 20 per cent.]

Elementary Theoretical Chemistry.—*Chemical Action.*—Illustrations and examples. Simple and compound substances. Atoms and molecules. Chemical symbols and nomenclature; formulæ aud equatious. General nature of acids, bases, and salts. *Combustion.*—Structure and properties of flame. *Water.*—Proofs of composition; methods of purification. *The Air.*—Its coustitutiou; reasous for consideriug it a mixture and not a compound. The chief physical aud chemical characters, with methods of preparatiou, of the following elements and coupounds: Hydrogen, oxygen (and ozone), nitrogen, carbon, chlorine, sulphur, uitrous oxide, nitric oxide, nitric acid, ammonia, carbou dioxide, carbon monoxide, marsh gas, olefiant gas, hydrochloric acid, sulphur dioxide, sulphurous acid, sulphuric acid, sulphuretted hydrogen. [Minimum pass, 20 per cent.]

The candidate must pass in one, at least, of the following optional subjects [the oue selected has to be stated at the time of application]:—

Elementary Physics and Mechanics.—Souud, light, and heat, as given in Ganot's "Elementary Course of Natural Philosophy"; mechanics of solids and fluids, comprising the elements of statics, dynamics, and hydrostatics.

The Rudiments of Botany.—Oliver's "Lessons in Elemeutary Botany," Part I.

French, German, or any modern language.

In awarding marks, spelling and the quality of handwriting are taken into account. An aggregate of 40 per cent. of marks is necessary to pass. Certificates of having passed any of the examinations accepted by the General Medical Council and the Preliminary examination of the Pharmaceutical Society of Great Britain are accepted in lieu of the above, provided the examination has been passed at least one year before the candidate presents himself for the pharmaceutical licence and the fee of 2*l.* 2*s.* be paid.

Pharmaceutical Licence Examination.

Candidates for this examination must be 21 years of age (to be proved by certificate), and have passed the Preliminary examination or its equivalent at least one year previously. They must also produce a certificate showing that they have had four years' shop-experience under a properly qualified master. The examination is held on the second Wednesday of January, April, July, and October, at 11 A.M. Fourteen clear days' notice has to be given to the Registrar, together with a receipt for the fee (5*l.* 5*s.*), which must be previously lodged in the Bank of Ireland. At the same time the certificates regarding age, Preliminary examination, and shop-experience must be forwarded, together with a certificate proving attendance at a course of practical chemistry of not less than three months, and actual work at the bench of 100 hours, at any of the following institutions, also a

course of botany and materia medica at one of those marked with an asterisk :—

*Pharmaceutical Society of Ireland's School.
*Pharmaceutical Society of Great Britain's School.
Cecilia Street School of Medicine, Dublin.
City of Dublin Technical Schools.
City School of Chemistry and Pharmacy (Limited), Chancery Lane, London, W.C.
Government School of Science, South Kensington.
Queen's College, Belfast.
*Queen's Colleges, Cork and Galway.
Royal College of Science for Ireland, Dublin.
Royal College of Surgeons in Ireland, Dublin.
*School of Physic, Trinity College, Dublin.
Anderson's College Medical School, Glasgow.
*Royal Academical Institution, Belfast.
Municipal Technical Institute, Belfast.

The fee for subsequent examination is 1*l.* 11*s.* 6*d.* It is advisable to communicate with the Registrar (67 Lower Mount Street, Dublin) as long as possible beforehand, seeing that so many conditions have to be complied with in giving notice. The examination is written, practical, and oral, and the subjects are as follows :—

Botany.—To recognise the principal indigenous plants used in medicine, to refer them to their natural orders, and to give the definitions and the distinctive characters of their several parts.

Materia Medica.—To recognise specimens of the drugs of the Pharmacopœia ; to describe their characters and active principles, name the sources from which they are obtained, and the official preparations into which they enter ; and to detect adulterations.

General and Pharmaceutical Chemistry.—The elementary laws of chemistry and physics, including chemical equations. To recognise the chemical substances of the Pharmacopœia ; to describe the processes by which they are obtained; qualitative analysis (including the tests of the Pharmacopœia) and volumetric analysis; and to submit to a practical examination in these subjects.

Practical Pharmacy.—To translate Latin prescriptions; to detect dangerous doses; to compound and dispense correctly. To explain the processes of making the non-chemical preparations of the Pharmacopœia, and to recognise them. To submit to an examination in the Sale of Poisons (Ireland) Act.

The minimum pass percentages are : Pharmacy, 50 per cent. ; botany, 40 per cent. ; materia medica, 40 per cent. ; chemistry, 40 per cent. ; but the candidate must make an aggregate of 55 per cent. The Council awards a gold medal to the best candidate of the year at the examination, provided he makes a total of not less than 240 marks out of the 300, and of 65 in each of the subjects ; and a silver medal to the second best candidate, provided he makes a total of not less than 230 marks out of the 300, and of 60 in each of the three subjects.

Examination for Registered Druggists.

The candidate for this title is examined with respect to his knowledge of English orthography and composition, arithmetic, and the weights and measures of the British Pharmacopœia, the appearance and properties of the various drugs and chemicals in general use, and the Irish Poisons Act. He must have served four years as an apprentice or assistant to a registered druggist, or pharmaceutical chemist, or chemist and druggist or apothecary, and when applying (fourteen days previous to the examination) he must enclose declarations to this effect, together with a receipt for the fee (2*l.* 2*s.*) paid into the Bank of Ireland. The examination is held in Dublin on the second Tuesday of January, April, July, and October, and at any place for which twelve candidates make application. On passing, a further fee of 2*l.* 2*s.* is paid for registration.

Assistants' Certificates.

Examinations for these are held in Dublin on the second Mondays of January, April, July, and October. Fourteen days' notice must be given to the Registrar, together with the Bank of Ireland's receipt for the fee (1*l.* 1*s.*). The candidate must have passed the Preliminary examination and been engaged at practical pharmacy for four years, which must be proved, as in the Licence examination. The subjects of examination are the reading and translation of autograph prescriptions and detection of unusual doses ; practical dispensing, materia medica as far as recognition of specimens and knowledge of quality and purity is concerned ; pharmacy as regards recognition and knowledge of proportions of active ingredients ; and the Sale of Poisons (Ireland) Act.

The Apothecaries' Hall in Ireland grants an Assistants' certificate to persons over 16 years of age who have two years' experience in practical pharmacy with a registered Irish apothecary or pharmacetical chemist, and who pass an examination similar in scope to the foregoing. The examination is held on the first Friday of each month, except August. Fee, 2*l.* 2*s.*, to be paid to the Secretary of the Hall, Mary Street, Dublin.

Channel Islands and Isle of Man.

The Pharmacy Act, 1868, extends to Orkney and Shetland, but not to the Channel Islands and Isle of Man, which have power to make their own laws.

Guernsey requires production of British or French certificates, which must be produced for registration in the island.

Jersey restricts the sale and dispensing of poisons to registered chemists and druggists or pharmaceutical chemists of Great Britain, or pharmaceutical chemists of Ireland, or holders of the pharmacien diploma of France.

The Isle of Man accepts the British or Irish qualification. Those who were assistants in the island for nine years prior to 1899 are registered on production of the Apothecaries' Society's Assistants' certificate.

British Colonies.

The Minor certificate of Great Britain and the Irish licence are recognised in every part of the British Dominion, except New South Wales. Canada has its own pharmacy-law with a Preliminary and Qualifying examination, a curriculum being required at Ontario and Quebec. The home-qualifications are, however, recognised, but the registration-fees must be paid. In British Guiana and the West Indies, also Gibraltar, the same certificates suffice for registration. The South African colonies have pharmacy-laws and examinations on similar lines to those at home, but British and Irish certificates are accepted. The Australian colonies and New Zealand have Pharmacy Acts, but all, except New South Wales, accept the British or Irish qualification. India, Ceylon, and Straits Settlements, have no Pharmacy Acts, but merely local licensing-laws for the sale of poisons, for which the British or Irish licence holds good. Persons emigrating should assure themselves that their names are on the Register before leaving and should take their certificates with them.

Schools of Pharmacy.

In the following paragraphs we give the leading particulars of the courses of instruction for the qualifying examinations in pharmacy afforded by the colleges and schools of pharmacy in the United Kingdom. We advise students to write for the prospectuses of such schools as appear to be suited for them. Care should be taken to ascertain what extra fees, if any, are to be paid. The principals of the various schools are at all times pleased to give students information on points not touched in their prospectuses. In many towns where there are no special schools of pharmacy evening science classes (sometimes arranged by the local Chemists' Association) are held under the Board of Education, South Kensington. The more important of these are mentioned in the Science Section, but inquiry should in all cases be made locally, and advantage taken if possible, of the classes in chemistry and physics.

LONDON.

The School of Pharmacy,

17 Bloomsbury Square, London, W.C.

Staff : Botany—Professor J. Reynolds Green, Sc.D., F.R.S. Chemistry—Professor W. Palmer Wynne, D.Sc., F.R.S. Pharmaceutics (Materia Medica and Phar-

macy)—Professor Henry G. Greenish, F.I.C. (Dean); Assistant-Lecturer in Chemistry—Mr. T. E. Wallis, B.Sc.

The session commences on Wednesday, October 1, 1902, when the prizes of the last session will be distributed. Two courses of study are given—an elementary and an advanced course. The elementary course includes subjects required for the Minor, and extends to the end of June, 1903. The advanced course extends from October to the end of March. Students may, however, enter the school at any time and for any subject or part of the course, but it is advantageous to enter at the commencement of the course in October. The fee for the elementary course is 32*l.* 11*s.* (in instalments), or 30*l.* (if paid in one sum), and for the advanced course 18*l.* 18*s.* or 18*l.* The lectures on the various subjects can be taken separately. Professor Greenish is the Dean of the School, but applications for prospectuses and admission to the school should be made to the Registrar of the Pharmaceutical Society.

South London School of Pharmacy,

325 *Kennington Road, London, S.E.*

Visiting Examiner, Dr. John Muter, F.R.S.E. Staff: Mr. F. Armstrong, Mr. W. F. Mawer, F.C.S., Mr. J. Thomas, B.Sc., and Mr. A. H. M. Muter, F.I.C.

The session at this school lasts from the beginning of September until the middle of July. Fresh courses of lectures for the Minor and Major begin in September, January, and April. The fees for the Minor are: One term, 10*l.* 10*s.*; two terms, 19*l.* 19*s.*; and three terms, 27*l.* 10*s.* A short term for the October examination is conducted at a fee of 5*l.* 5*s.* The Major fees are: One term, 9*l.* 9*s.*; two terms, 17*l.* 17*s.*; and three terms, 25*l.* Students who go straight on for the Major after passing the Minor from this school are allowed 10 per cent. off the Major fees. A free-tuition scholarship is offered for competition at the end of August in each year, and is tenable for one year.

Westminster College of Chemistry and Pharmacy (Ltd.),

Trinity Square, Borough, London, S.E.

Principal, Mr. G. S. V. Wills; Secretary, Mr. J. E. Walden.

There are during the school year four courses of lectures beginning in August, October, January, and April, and three for the Major, beginning in September, January, and April. The fee for a Minor course is 8*l.* 8*s.*; two courses, 12*l.* 12*s.*; until qualified, 15*l.* 15*s.* Major course, 6*l.* 6*s.*; until qualified, 10*l.* 10*s.* Apothecaries' Hall, one course, 5*l.* 5*s.*; two courses, 8*l.* 8*s.*; until qualified, 10*l.* 10*s.* Evening lectures with practical work are also given, the fee for a three-months' course being 1*l.* 1*s.* Postal systems are arranged for all examinations. To meet the increased examination-fees for the Minor now demanded by the Pharmaceutical Society a system has been introduced at this school of paying, on certain conditions, half the fee—viz., 5*l.* 5*s.*

Metropolitan College of Pharmacy,

160 *and* 162 *Kennington Park Road, London, S.E.*

Principal, Mr. W. Watson-Will, F.L.S., F.C.S.; Demonstrators, Mr. Harry Lucas, F.C.S., Mr. F. F. De Morgan, F.C.S., and Mr. D. J. Williams, Ph.C.; Secretary, Mr. Walter S. Carver.

The sessions are as follows: Winter, September 2 to January 12; spring, January 1 to April 20; summer, April 12 to January 23. A special tutorial course for the October examination began on August 18, and continues to October 12. The inclusive fee for one Minor session is 10*l.* 10*s.*; two, 19*l.* 19*s.*; for the special tutorial course, 6*l.* 6*s.* The fee for one Major session is 8*l.* 8*s.* An evening continuation course, commencing on September 2 and lasting till July, 1903, has been arranged to enable those who are engaged during the day to take up a complete course similar to the day session. The fees are according to the period of attendance.

Imperial College of Chemistry,

49 *and* 51 *Imperial Buildings, Ludgate Circus, London, E.C.*

Principal, Mr. Frederick Davis.

Courses of study begin in January, April, July, and October. For the Minor examination students are advised to attend the school for six months, but the work may be covered in three months. The fee is 10*l.* 10*s.* for the three months' course, 17*l.* 17*s.* for six months, and students may enter for single subjects at fees from 1*l.* 1*s.* upwards. Evening classes are held on the first four nights of the week. Courses of instruction are organised to meet the requirements of the Apothecaries' Hall, the Institute of Chemistry, and the Conjoint Board of the Royal Colleges of Physicians and Surgeons. A feature of this college is the organisation of visits to chemical-works. Special Major tutorial course, 8*l.* 8*s.*

London College of Chemistry, Pharmacy, and Botany,

323 *Clapham Road, London, S.W.*

Staff: Mr. Henry Wootton, B.Sc. Lond. (Principal); Mr. W. B. Nelson, Ph.C., and Mr. J. Wilson, M.A., assisted by qualified demonstrators.

The terms commence on October 1 and at the beginning of January and April. The fees for the Minor course per term are 9*l.* 19*s.* 6*d.* (two terms, 17*l.* 17*s.*); Major, 6*l.* 16*s.* 6*d.* (two terms, 11*l.* 11*s.*). In addition to the regular lectures and practical work, special tutorial classes are held daily at 4 P.M., except Saturday. Evening classes are held, the fees for which vary from 1*l.* 1*s.* to 2*l.* 7*s.* 6*d.*, according to the number of classes attended each week.

Special classes are held daily in preparation for the Preliminary examination of the College of Preceptors, the fee for which is 4*l.* 4*s.* per term of three months.

The Central School of Pharmacy,

2 *Charterhouse Street, E.C.*

Principal, Mr. C. E. Sage, Ph.C., F.C.S.

Day classes are held for the Minor and Major, the courses commencing in September, January, April, and July. Evening classes, which cover the Minor syllabus, are held on Mondays, Wednesdays, and Fridays. The fee for a full-day course of seven months is 18*l.* 18*s.*; for the three-months' course, 10*l.* 10*s.* The evening-class fees are at the rate of 4*l.* 4*s.* for a three-months' course. A special class is held for the Apothecaries' Assistants' examination, and private tuition is given in chemistry for Medical and London University examinations.

Brixton School of Pharmacy,

171 *Brixton Road, London.*

Principal, Dr. A. B. Griffiths, F.R.S.E.

Classes are held for the Minor, Major, and Apothecaries' Hall examinations. There is a post-graduate course in research-work and commercial analysis.

PROVINCIAL.

Barrow-in-Furness.

At the Higher Grade School, Duke Street, evening classes are arranged in theoretical and practical chemistry and botany which are suited for pharmaceutical students. The session begins early in September, and particulars can be obtained from Mr. C. F. Preston, Town Clerk and Secretary.

Birmingham.

Mr. F. H. Alcock, F.I.C., *The Analytical Laboratory, Temple Chambers, Broad Street Corner*, gives private tuition in all pharmaceutical subjects. Fees, 8*l.* 8*s.* per quarter.

The Central School of Pharmacy, 90 *New Street.*—Mr. Stokes Dewson has day and evening classes for the Major and Minor examinations. The new courses begin this week.

Municipal Technical School, *Suffolk Street.*—There are special courses of chemistry on Wednesday afternoons for the Minor examination, the next session commencing on September 15. The courses extend over two sessions, and consist in each course of about an hour's lecture and two hours' practical work, from 2.30 to 5.30 P.M., weekly. The fee for either lecture course is 2*s.* 6*d.*; for the combined course, 5*s.* There are also botany classes (elementary,

advanced, and practical) suited for pharmaceutical students (fee 3*s.* 6*d.*), and a materia-medica cabinet has been provided by Messrs. Southall Brothers & Barclay for the use of students.

BRADFORD MUNICIPAL TECHNICAL COLLEGE.

Head of Chemistry Department, Mr. W. M. Gardner. Lecturers in Chemistry, Mr. B. North and Mr. S. F. Stell. Lecturer in Botany, Materia Medica, and Pharmacy, Mr. W. West, F.L.S.

The general pharmaceutical course, which includes chemistry and physics (lectures and laboratory), botany (lectures and laboratory), materia medica and pharmacy, and dispensing (lectures and practical), extends over two years, and is arranged so that chemists' apprentices can completely prepare for the Minor and Major examinations during the course of their ordinary work. The classes are held on three afternoons each week, but evening classes are available for those who find it impossible to attend during the day.

BRIGHTON.

A pharmaceutical course for Minor students has been arranged at the Municipal School of Science and Technology, Richmond Terrace. The classes require the attendance of students from 2 to 4.30 on Tuesdays, 10 to 12.30 on Wednesdays, 2 to 4.30 on Thursdays, and 2.30 to 3.30 on Fridays, and are thus available for apprentices and assistants whilst engaged in business; but evening-classes are also available. The fee for a complete Minor course is 2*l.* 2*s.* The term begins on September 8.

BRISTOL UNIVERSITY COLLEGE.

The chemistry classes at nominal fees are useful for pharmaceutical students, and instruction in practical chemistry can be had in the chemical laboratory at fees which depend on the number of evenings a week devoted to the subject. A special course in pharmaceutics, meeting the requirements of the Minor examination of the Pharmaceutical Society, will be given during the second and third terms.

CAMBRIDGE.

The Cambridge Pharmaceutical Association, through their Secretary (Mr. B. S. Campkin, Mill Road), will furnish particulars of classes in botany and chemistry suitable for pharmaceutical students. The classes are held at the Technical Institute, in connection with the Science and Art Department, South Kensington.

DERBY.

Derby Technical College.

Principal, Mr. F. W. Shurlock, B.Sc., B.A. Teachers: Chemistry, Dr. A. J. Walker, B.A.; Botany, Dr. H. L. Jameson, M.A.; Materia Medica, Mr. H. Hoare; Pharmacy, Mr. S. Taylor, Ph.C.

Classes for pharmaceutical students are held in the subjects required for the Minor and Major examinations. The classes commence at the end of September.

EXETER.

School of Pharmacy,
Royal Albert Memorial College.

Lecturers: Physics, The Principal and Mr. J. Trott. Chemistry, Mr. W. H. Lewis, M.A. Pharmacy, Materia Medica, and Pharmacy Law, Mr. H. Wippell Gadd. Botany, Mr. J. L. Sager, B.A.

A complete course of instruction for the Minor examination has been arranged in day and evening classes. Shorter courses are arranged for medical students and those preparing for the Assistants' examination of the Apothecaries' Society. The fees are moderate.

LANCASTER.

Municipal Technical School, the Storey Institute.

Principal, Mr. William French, M.A., F.I.C. Chemistry, The Principal and Mr. William Wyatt, Ph.C. Physics, Mr. T. C. Joyce, Inter. B.Sc., and Mr. T. McBrathney, B.Sc. Botany, Mr. William Wyatt, Ph.C.

Practical work as well as lectures given in all subjects.

LEEDS.

College of Pharmacy, Springfield Place.

Principal, Mr. F. Pilkington Sargeant, F.C.S.

There are four Minor courses at this college during the year, beginning early in January, April, July, and October. Each course comprises 5½ days' work per week for six months, when the subjects are covered four times—twice in detail and twice in recapitulation. The fee for three months' full-time class, Minor or Major, is 8*l.* 8*s.*; for six months, 14*l.* For the evening and weekly classes the fee is 4*l.* 4*s.* for a six-months' course. Botanical excursions are organised on alternate Saturdays in the summer months. Classes are also held for ladies desiring to qualify as dispensers. A college magazine is published monthly.

The Yorkshire College, Victoria University.

There are courses in chemistry, physics, and botany at this college suitable for pharmacy students. Mr. J. H. Gough, Ph.C., F.C.S., is the demonstrator in practical pharmacy.

Leeds Technical School (in connection with the Leeds Institute of Science, Art, and Literature).

There are evening courses of study at this school in chemistry, physics, and botany during the winter. The classes open early in September. A course of pharmaceutical chemistry has been arranged, of which full particulars can be obtained from Mr. A. Tait, Secretary, Leeds Institute, Cookridge Street. The Leeds Chemists' Association occasionally arrange a materia-medica course, and have an excellent cabinet of specimens.

LIVERPOOL.

School of Pharmacy, 6 Sandon Terrace, Upper Duke Street.

Principal, Mr. R. C. Cowley.

The full-time course of study for the Minor begins on September 8 and continues till Christmas, the fee being 10*l.* 10*s.* The January and April courses continue till the April and July examinations, the fee being 9*l.* 9*s.* The fee for two full courses, which is recommended by the principal, is 16*l.* 16*s.* Major full-time classes are held from 9 to 5 daily, the fee for a course of three months being 9*l.* 9*s.* There are also part-time classes held on Wednesdays from 3 to 10 P.M., the session beginning in September. The fee for a full course is 7*l.* 10*s.* A tutorial class is held on Tuesdays for advanced students, and part-time students can attend on other days by arrangement.

University College School of Pharmacy.

Chemistry, Professor J. C. Brown, D.Sc. Physics, Professor L. R. Wilberforce, M.A. Botany, Professor R. J. H. Gibson, M.A. Materia Medica, Professor W. Carter, LL.B. Lecturer on Pharmacy, Mr. Prosper H. Marsden, Ph.C.

The next session for the Minor begins on October 2, 1902, that for the Major in May, 1903. The composition-fee for each course is 17*l.* The course may be taken in a single year or spread over a longer period. The Manchester Pharmaceutical Scholarship may be held at this college. Applications for admission should be made to the Registrar.

MANCHESTER.

The Owens College Pharmaceutical Department.

Principal, Mr. A. Hopkinson, K.C., M.A. Dean, Professor William Stirling, M.D. Physics, Professor A. Schuster, Ph.D., F.R.S. Chemistry, Professor H. B. Dixon, F.R.S., and Professor W. H. Perkin, F.R.S. Materia Medica and Pharmacy, Professor R. B. Wild and Mr. Jas. Grier, Ph.C. Lecturer in Pharmacognosy, Mr. W. Kirkby, F.L.S. Pharmaceutical Chemistry, Mr. Jas. Grier. Botany, Professor F. E. Weiss and Dr. Darbishire.

The course for the Minor examination extends over a winter and a summer session, and the course for the Major over one winter session. Students who desire to obtain the B.Sc. of the Victoria University and who have passed the necessary Preliminary, may so arrange their courses for the Minor and Major as to include the other subjects required for the Intermediate, which may be taken at the end of the

first or second year. The Dean of the School enrols students for the winter session from September 27 to October 15. The composition fee for the Minor is 19*l.*; that for the Major 15*l.* 15*s.* The Manchester Pharmaceutical Scholarship, of the value of 26*l.*, is tenable at this College.

Manchester College of Pharmacy,
225A *and* 227A *Oxford Street.*
Director, Mr. Chas. Turner, F.C.S.

The year's work is divided into the following courses: August 18 to January examination (fee 10*l.* 10*s.*), October to the April examination (fee 14*l.* 14*s.*), and January to the July examination (fee, 14*l.* 14*s.*). There are also evening classes for the Apothecaries' Hall examination, the fee for a six months' course being 4*l.* 4*s.* Local classes are held on Tuesdays and Wednesdays from 2 to 10 P.M., and evening classes on Mondays, Wednesdays, and Fridays from 8 to 10 P.M. The fees for these classes are 4*l.* 4*s.* from January to July, and 3*l.* 3*s.* from August 18 to Christmas. The fees for the full-time class in preparation for the Major are at the rate of 2*l.* 2*s.* a month.

Northern College of Pharmacy, 100 *and* 102 *Burlington Street.*
Principals, Mr. George Clayton, F.C.S., and Mr. F. Lawson, B.Sc. Lond.

For the Minor there are three separate courses or classes always running—the day class, afternoon class, and evening class. The fee for the September-January day course is 10*l.* 10*s.*, for the January-April and also the April-July course 9*l.* 9*s.*, and for the September-December afternoon or evening course 2*l.* 10*s.* Major classes are held, the courses beginning in September, January, and April, the fee for the September-January course being 6*l.* 6*s.*, for the January-April also the April-July course 5*l.* 5*s.*

NEWCASTLE-ON-TYNE.

North of England School of Chemistry and Pharmacy, 55 *Northumberland Street.*
Principal, Mr. Frank R. Dudderidge, F.C.S.

There are four sets of Minor classes in operation at this school: Full-time day class, fee 8*l.* 8*s.* per term of twelve weeks; evening classes meeting three times a week, fee 3*l.* 3*s.*; afternoon classes on Wednesday and Thursday, fee for either day 3*l.* 3*s.*; and a special weekly class for junior assistants and apprentices. Day and evening classes are also held for the Major examination, at fees of 7*l.* 7*s.* per term for the day course and 3*l.* 3*s.* for the evening course. Terms commence in October, January, and April, and a short course of lectures for the October examinations commences in August. Arrangements have been made for classes at which the subjects required for the Preliminary certificate are taught.

The Durham College of Science.

Courses of lectures on chemistry, physics, and botany can be taken by pharmaceutical students at this college.

NOTTINGHAM.

University College.

Classes are held in all the subjects required for the Minor and Major, and the necessary work is arranged for in the chemical, botanical, and physical laboratories in evening classes. The fees range from 5*s.* to 15*s.* the course. Professor F. S. Kipping, F.R.S., is the head of the chemistry department.

PLYMOUTH.

Municipal Science, &c., Schools.

Lecturers in Chemistry, Mr. J. B. Brown, B.Sc., and Dr. J. R. Thackrah, M.A.

There are courses of chemistry, botany, physics, and practical chemistry, and, the classes being held in the evening, they are very convenient for pharmacy students.

UNIVERSITY COLLEGE, READING, SCHOOL OF PHARMACY.

Principal: Mr. H. J. Mackinder, M.A. Lecturers: Chemistry, Dr. C. M. Luxmoore, F.I.C.; Physics, Mr. G. J. Burch, F.R.S.; Botany, Mr. F. W. Keeble, M.A.; Materia Medica, Mr. B. J. Austin, F.L.S.; Pharmacy and Dispensing, Dr. J. L. E. Drugman.

The subjects of study are those comprised in the syllabuses of the Minor and Major examinations. A complete course for either examination extends over three terms, the composition fee for which 18*l.* Students who are well forward may enter for two terms. Students can compound for tuition-fees and board and lodging for the session for 52*l.* Particulars can be had by addressing the College Registrar.

SHEFFIELD.

College of Pharmacy, Princess Buildings, 116A–118A *The Moor.*
Principal, Mr. J. W. J. Turner, Ph.C.

Day classes are held, commencing the first week in October, January, and April. The fees for a three-months' Major course are 6*l.* 6*s.*; Minor, 8*l.* 8*s.*; for a six months' Minor course the fee is 13*l.* 13*s.* Evening and part-time classes are held, and correspondence classes are also in operation.

University College.

Classes in the three-years' course for Minor students are held at Wednesday, Thursday, and Friday evenings, the session beginning on October 9. Mr. John Austen, Ph.C., is the lecturer in Materia medica. The fees are: materia medica, 10*s.* 6*d.*; chemistry, two years, 30*s.* each; practical chemistry, 30*s.*; botany, two years, each 30*s.*

SOUTHAMPTON.

Instruction in chemistry and botany can be had in day and evening classes at the Hartley College.

SPALDING.

Grammar School.

Evening classes are held in practical chemistry, suitable for Minor students, Mr. E. Wightman Bell, F.C.S., being the teacher.

WOLVERHAMPTON.

Municipal Science and Technical School.

Teachers: Inorganic and Organic Chemistry, Mr. W. Whitehouse, F.C.S.; Physics, Messrs. W. Whitehouse and W. J. Rogers; Botany, Mr. Sidney Phillips, Ph.C.; Latin, Mr. F. G. Griffiths, M.P.S.

Day classes (the session begins on September 15) are held in chemistry and physics, and evening classes in chemistry, physics, and botany. Special arrangements are made for the requirements of pharmaceutical students. For other particulars and programme, the Secretary should be addressed.

SCOTLAND.

ROBERT GORDON'S COLLEGE IN ABERDEEN.

School of Pharmacy.
Head Teacher, Mr. Gilbert Simpson, Ph.C.

The pharmaceutical department of this College embraces courses of study for the Minor and Major examinations. The term for the October examination began on August 25. The fee for the short course is 3*l.* 3*s.*, for full course 7*l.* 7*s.* Evening classes are also held, for which the fee is 3*l.* 13*s.* 6*d.*; the next course begins on September 29. Single subjects, the fees for which range from 10*s.* 6*d.* to 21*s.*, may be taken if desired. The Aberdeen Pharmaceutical Association offer prizes (each consisting of three months' free tuition in the day classes) to students of the evening school at the end of the session.

ROYAL DISPENSARY AND SCHOOL OF PHARMACY,
21 *West Richmond Street, Edinburgh.*

Principal, Mr. William Duncan, Ph.C., F.C.S., assisted by Mr. W. G. Mackenzie, Ph.C., and Mr. E. J. Brown.

The session is divided into three terms, commencing in October, January, and April, elementary and advanced

courses being carried on simultaneously. For Minor and Major students the fee for one term is 8*l.* 8*s.*; shorter terms at proportional rates. Evening classes, covering the same ground as the day classes, are held on Monday, Tuesday, and Thursday at 8.30. Fee, 3*l.* 3*s.* for a three-months' course, which begins in September.

CENTRAL SCHOOL OF PHARMACY,

26 *Clyde Street, Edinburgh.*

Principal, Mr. W. B. Cowie, Ph.C. Assistants, Messrs. W. McEwen, Robert Henderson, and A. C. Cameron, M.A.

Full courses of instruction commence in October, January, and April, and a short course begins in August. Evening classes are also held. Fees per quarter for Minor or Major course, 8*l.* 8*s.* (day) and 3*l.* 3*s.* (evening). A class for preparing students for preliminary examinations the certificates of which, are accepted by the Pharmaceutical Society is held on Monday and Thursday evenings at a fee of 1*l.* 1*s.* per quarter.

GLASGOW SCHOOL OF PHARMACY,

Blythswood Chambers, 180 *West Regent Street, Glasgow.*

Principal, Mr. John Lothian, Ph.C. Assistants, Mr. Bertram Cockburn, Ph.C., and Mr. H. Rodwell, Ph.C.

For the Minor and Major full courses commence September 29, 1902, and continue to the end of March—a similar course beginning on April 6, 1903. Fee, 8*l.* 8*s.* per quarter. Advanced courses of three months' duration are held, and also evening classes. The fees for the evening classes are 1*l.* 1*s.* per quarter for each subject, one evening a week.

WEST OF SCOTLAND COLLEGE OF PHARMACY,

157 *St. Vincent Street, Glasgow.*

Principal: Mr. T. S. Barrie, F.C.S., assisted by Messrs. W. Graham, J. McKenzie, M.A., and Thomas McMaster, M.A.

At this college there are three terms, beginning on October 6, January 5, and April 6. The fees for the day classes for the Minor are 8*l.* 8*s* per term of three months, or 15*l.* 15*s.* for six months. Evening and correspondence classes are also held, the fees for the evening classes being at the rate of 1*l.* 1*s.* per term for one night per week. A special class for country students is held on Tuesday afternoon from 2 to 9 P.M. General education classes, meeting on Monday, Tuesday, Wednesday, and Thursday evenings, began on September 1 for students preparing for the examination of the Educational Institute of Scotland. The fees for six months' tuition are: Junior course, 30*s.*; senior course, 37*s.* 6*d.*

IRELAND.

PHARMACEUTICAL SCHOOLS OF CHEMISTRY, BOTANY, AND MATERIA MEDICA,

67 *Lower Mount Street, Dublin.*

Practical Chemistry Class, Director Professor Tichborne; Demonstrator, Mr. P. Kelly, M.P.S.I.; Theoretical Chemistry and Physics, Mr. T. A. Shegog, F.I.C., F.C.S.; Directors of the Botany and Materia Medica School, Dr. J. N. Laird, B.A.

The fees for the courses in accordance with the regulations of the Society are: Practical chemistry (six months), 6*l.* 6*s.*; theoretical chemistry and physics, 1*l.* 1*s.*; botany and materia medica, 2*l.* 2*s.* The practical chemistry class is held on Mondays, Wednesdays, and Fridays from 8 to 10 P.M., and consists of 100 hours' actual bench-work The class for theoretical chemistry and physics is held on Tuesdays and Thursdays from 8 to 9.30 P.M. Each session of the School of Botany and Materia Medica consists of twenty-six lectures, and the classes are held on Tuesdays and Thursdays at 8 P.M., with occasional Saturday demonstrations. The Registrar, 67 Lower Mount Street, Dublin will furnish full particulars, and receives the fees.

MUNICIPAL TECHNICAL INSTITUTE, BELFAST.

Principal. Mr. Fras. C. Forth, Assoc.R.C.Sc.I. Teaching Staff of Pharmaceutical Department: Mr. S. Templeton, Assoc.R.C.Sc., F.I.C.; Dr. E. Hyde, B.Sc., and Mr. T. Harper, M.P.S., L.P.S.I.

Full course of instruction in all pharmaceutical subjects begins in the week commencing September 22. Additional courses of instruction in practical chemistry, botany, materia medica, and pharmacy begin on January 5, 1903. Fees: Chemistry, 10*s.*; practical chemistry (100 hours), 1*l.* 10*s.*; botany, 7*s.* 6*l.*; materia medica, 7*s.* 6*d.*; pharmacy, 10*s.* 6*d.*

EDUCATION AT BLACKBURN.—Since the section referring to English provincial schools of pharmacy went to press we have received the following note:—

The North-East Lancashire Chemists' Association has been making overtures for years to the Committee of the Municipal Technical School at Blackburn to establish a complete course of classes for the Minor examination, but until this year without much success. For some sessions back chemistry has been taught with an eye to the pharmaceutical students' needs; last year a botany-class was also established for the same end. The Association was, however, unsuccessful in getting pharmacy and materia medica taught. In November of last year influence was brought to bear on the Town Council, and, as a result, Mr. J. Hindle (late Secretary of the N.E.L.C.A.) was elected a member of the Technical Instruction Committee, and by means of this direct representation the Technical School Committee have at last decided to undertake the experiment of materia-medica and medical-Latin classes, which it is to be hoped will be the forerunner of a complete course in pharmacy. The chemists have had to make sacrifices for the attainment of their object, and have undertaken to find teacher and specimens free of all cost to the Technical School, and do not derive any pecuniary benefit whatever from the fees, which will be returned to the diligent students in prizes. It is to be hoped that this experiment will be a success, as it is thought that it will eventually lead to the establishment of day classes, which apprentices might then attend during apprenticeship, and thus save both time and money afterwards. Mr. Joseph Hindle, who has had considerable experience for many years in this kind of work, has been nominated by the N.E.L.C.A. as teacher, and the Technical School Committee have ratified the appointment. The special classes for Latin and materia medica are held on Wednesday evenings from 8.30 to 10 P.M., and are open to all who can produce evidence of an elementary knowledge of Latin and botany. Fees: Medical Latin, 5*s.*, and materia medica, 10*s.* per session; and these classes are open to all North-east Lancashire.—*G. B. Pickworth* (Hon. Secretary).

Medicine.

WHILE the Medical Acts do not specifically prohibit the practice of medicine by unqualified persons, they grant protection to the registered holders of medical titles, and hedge the practice round to such an extent as to practically exclude unregistered practitioners from the field. Witness the following sections:—

Any person who shall wilfully and falsely pretend to be or take or use the name or title of a physician, doctor of medicine, licentiate in medicine and surgery, bachelor of medicine, surgeon, general practitioner, or apothecary, or any name, title, addition, or description implying that he is registered under this Act, or that he is recognised by law as a physician or surgeon, or licentiate in medicine and surgery, or a practitioner in medicine, or an apothecary, shall, upon a summary conviction for any such offence, pay a sum not exceeding 20*l.*

No person shall hold any appointment as a physician, surgeon, or other medical officer either in the military or naval service, or in emigrant or other vessels, or in any hospital, infirmary, dispensary, or lying-in hospital, not supported wholly by voluntary contributions, or in any lunatic asylum, gaol, penitentiary, house of correction, house of industry, parochial or union workhouse or poorhouse, parish union, or other public establishment, body, or institution, or to any friendly or other society for affording mutual relief in sickness, infirmity, or old age, or as a medical officer of health, unless he be registered as a general medical practitioner.

The privileges of registered medical practitioners are defined in the Act thus:—

On and after the appointed day a registered medical practitioner shall, save as in this Act mentioned, be entitled to practise medicine, surgery, and midwifery in the United Kingdom, and (subject to any local law) in any other part of his Majesty's dominions, and to recover in due course of law in respect of such

practice any expenses, charges in respect of medicaments or other appliances, or any fees to which he may be entitled, unless he is a Fellow of a college of physicians the Fellows of which are prohibited by by-law from recovering at law their expenses, charges, or fees, in which case such prohibitory by-law, so long as it is in force, may be pleaded in bar of any legal proceedings instituted by such Fellow for the recovery of expenses, charges, or fees.

The privileges of medical men are further preserved by that *esprit de corps* known as medical etiquette. The General Medical Council has the power to take the names of men and women off the register who are found guilty of a breach of infamous conduct in a professional respect, and this doubtless goes a long way towards the upkeep of the medical man's status, preventing that degradation which is incompatible with the practice of medicine.

Medicine, as a profession, should not be entered on without very careful consideration. Financially, the profession, while it brings an assured livelihood to anyone who is able and willing to work, in the majority of cases gives its devotec only a bare living as a return for very arduous and continuous service, while the position of a "doctor" requires an upkeep which is often a scrious drain on a struggling practitioner's income. Moreover, a sound constitution is wanted for a profession which does not give its possessor a minute to himself day or night, Sunday or Saturday, while the calls on one's patience and tact are very great, and at times in no small measure trying. Still, for a man of ability and health, who can uphold the honour of a noble profession, the study of medicine offers a career well worth following.

A writer in the *Times* of September 1, writing in regard to the new conditions in the Royal Army Medical Corps, and comparing the prospects therein with those of civil medical practice, submits the following statement of an agent who has had twenty years' experience of dealing with the transfer of practices :—

I take the average gross income of 50 per cent. of medical men starting general practice to be (*a*) at starting, 500*l.*; (*b*) after three years, 600*l.*; (*c*) after ten years, 800*l.* to 900*l.*; (*d*) after twenty years, 900*l.* to 1,200*l.* per annum. The professional expenses, including drugs, dispensary, horses, carriages, and stable-expenses, may be taken as averaging at the outside one-third of the gross income, reducing the gross earnings to net incomes of 333*l.*, 400*l.*, 600*l.*, and 800*l.* respectively. The capital required to start on the above lines would vary between 750*l.* and 1,500*l.* The selling-value would increase in the same ratio as the income.

Comparing these incomes with those of the Royal Army Medical Corps under the new warrant, including both pay and allowances, we find—

——	In Civil Practice	In R.A.M.C., 1902
On starting	333*l.*	329*l.*
After three years ...	400*l.*	403*l.*
After ten years ...	533*l.* to 600*l.*	476*l.*
After twenty years ...	600*l.* to 800*l.*	632*l.* to 750*l.*, with charge-pay

These are independent and useful data for those who think of going in for medicine.

The Curriculum.

The standard being laid down by the General Medical Council (which is not in itself an examining body), the training at the various schools is practically the same in all cases, whether it be in England, Scotland, or Irelaud, for a university degree or for a college diploma. The difference between the various universities and corporations lies in the severity of their examinations and not in any essential of the class-training. In all cases the minimum period of study is five years, and some students, especially when working for a university degrec find it advisable to spread out their studies a little longer. Before deciding, therefore, the student should carefully consider the regulations and requirements for the various degrees and diplomas, as will be set forth later. After deciding on the particular degrec or diploma to which he aspires, and selecting a school at which to study, he should communicate with the Warden or Dean of that school, who will give him all necessary advice as to mode of entrance, registration, &c.

Before the course of study can be taken up, the student must have passed the necessary Preliminary examination (see page 434), and it must be remembered that the various schools have their own rules regarding the Preliminary examination to be passed. Most of these, however, accept the London Matriculation examination wholly or *pro tanto*, and students will find it advantageous to pass this examination, particulars of which appear on page 433, especially now that the regulations regarding it have been modified giving a wide option of subjects. As soon as the required Preliminary examination has been passed the student must register his name at the office of one of the following Branch Registrars of the General Medical Council (according to the country of study), viz. :—

England and Wales—299 Oxford Street, London, W.
Scotland—48 George Square, Edinburgh.
Ireland—35 Dawson Street, Dublin.

Having registered himself as a medical student, which must be done within fifteen days of entering upon his studies, he commences his five years' course in earnest. By a recent regulation of the Royal College of Physicians and Surgeons, students seeking their diploma do not require to register provided they pass the required Preliminary examination and go through five years of study, but it is always advisable to register in any case, so that should the student seek other diplomas under which registration is necessary, he may have no impediment of this character in his way. We have said that in all schools the course of study is essentially the same. The student has to undergo three stages during the five years—(1) elementary science, (2) anatomy and physiology, (3) medicine, surgery, midwifery, and their special branches. The detailed list of subjects is as follows :—

(i.) Physics, including the elementary mechanics of solids and fluids, and the rudiments of heat, light, and electricity.
(ii.) Chemistry, including the principles of the science, and the details which bear on the study of medicine.
(iii.) Elemeutary biology.
(iv.) Anatomy.
(v.) Physiology.
(vi.) Materia medica and pharmacy.
(vii.) Pathology.
(viii.) Therapeutics.
(ix.) Medicine, including medical anatomy and clinical medicine.
(x.) Surgery, including surgical anatomy and clinical surgery.
(xi.) Midwifery, including diseases peculiar to women and to new-born children.
(xii.) Theory aud practice of vaccination.
(xiii.) Forensic medicine.
(xiv.) Hygiene.
(xv.) Mental disease.

The first four of the five years must be passed at a school or schools of medicine recognised by any of the licensing bodies, provided (*a*) that the first year may be passed at a university or teaching institution, recognised by any of the licensing bodies, where the subjects of physics, chemistry, and biology are taught; (*b*) that graduates in arts or science of any university recognised by the Medical Council, who shall have spent a year in the study of physics, chemistry, aud biology, and have passed an examination in these subjects for the degrees in question, shall be held to have completed the first of the five years of medical study.

The midwifery practice required is three months' attendance on the indoor practice of a lying-in hospital. or attendance at twenty labours, at least five of which shall have been conducted throughout under the direct supervision of a registered practitioner. These are the General Medical Council's requirements.

To assist the student in the selection of the qualification for which he is to aim, we give details of the various qualifications available. The United Kingdom divides itself into four sections—London, English Provinces, Ireland, Scotland.

London.—The facilities for medical study in London are great. The diploma of M.R.C.S.Eng. and L.R.C.P.Lond. ("double qual.," as it is called) is most popular. There is also the London M.B. and the Apothecaries' Licence available.

Provinces.—Birmingham, Leeds, Liverpool, Manchester, and Newcastle-on-Tyne have medical schools affiliated to the local universities, the students proceeding to the university degrees. Cambridge and Oxford have medical schools, which, however, require residence for a specified period. There are medical schools in other provincial cities (see page 447),

and the students of these take the double qual. or the London M.B.

Ireland.—M.B.Dublin and M.B.R.U.I. are the popular qualifications in Ireland: the former requires residence in Dublin, the latter is open to students from all recognised schools. The Irish double qual. and the Scotch triple qual. are also popular in Ireland.

Scotland.—There are four universities in Scotland, in which the conditions for medical graduation are the same. It is usual to matriculate at one or the other, and take the M.B., Ch.B., degrees. A few take the Scotch triple qual., as do also some English and Irish students.

A degree allows the holder to prefix "Dr." to his name, otherwise degrees and diplomas are much the same as regards advantages. The most popular degree appears to be that of Edinburgh University; the most popular diploma the M.R.C.S.Eng. and L.R.C.P.L.

The Qualifications.

L.R.C.P.Lond. and M.R.C.S.Eng.

This, as we have already said, is known as the "English double qual.," and is conferred by the Royal College of Physicians of London and the Royal College of Surgeons of England, acting through a Conjoint Examining Board, which meets at the Examination Hall, Victoria Embankment, W.C. There are three professional examinations:

The *First* consists of three parts (which may be taken as soon as the class certificates are obtained): Chemistry and physics, practical pharmacy, biology. These may be taken separately or together, and pharmacy may be taken at any time during the curriculum. Fee, 10*l.* 10*s.*

The *Second* examination is in anatomy and physiology, and both must be passed together not less than nine months after passing the *First*. Fee, 10*l.* 10*s.*

The *Third* or *Final* examination consists of three parts: (i.) Medicine (medical anatomy, pathology, pharmacy if not already passed, therapeutics, forensic medicine, and public health); (ii.) surgery (pathology and surgical anatomy); (iii.) midwifery and gynecology. These may be passed separately or together two years after the second examination has been passed, but the examination cannot be completed until the end of the five years' study subsequent to the Preliminary. Fee, 21*l.*

Communications should be made to the Secretary, Examination Hall, Victoria Embankment, London, W.C. (telegraphic address, "Conjoint London"). In all cases certificates of professional study are required before the student is admitted to the examination, and, in cases of failure, further study for three months must be certified before re-examination.

L.R.C.P. & S. Edin. and L.F.P.S.G.

This is known as the Scotch "triple qual.," and is conferred by the Conjoint Board of the Royal Colleges of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow. The examination is held in Edinburgh and Glasgow. Applications should be addressed to Mr. Jas. Robertson, 54 George Square, Edinburgh, or Dr. Alexr. Duncan, 242 St. Vincent Street, Glasgow. The curriculum now occupies four collegiate sessions (winter and summer), but a fifth year must be devoted to practical clinical work, and six months of this year may be spent as a pupil of a registered practitioner. There are four professional examinations:

First.—Physics, chemistry, biology, which may be taken separately. Fee, 5*l.*

Second.—Anatomy and physiology. A candidate may be passed in one subject while failing in the other, and the examination may be taken any time after the end of the second year provided the requisite courses of study have been gone through, Fee, 5*l.*

Third.—Pathology, materia medica, and pharmacy, at the end of the third year. Fee, 5*l.*

Final.—Medicine, surgery, midwifery, and medical jurisprudence. The student must be 21, and may not pass till the end of the fifth year. The examination may be taken separately or together. Fee, 15*l.*

L.R.C.P.I. and L.R.C.S.I.

This is conferred by the Conjoint Board of the Irish Colleges, and is known as the Irish "double qual." The examinations are very similar to those of the Scotch Board, there being four professional examinations:

First.—Chemistry and physics, biology. Fee, 15*l.*

Second.—Anatomy, physiology, and histology. Fee, 10*l.* 10*s.*

Third.—Pathology, materia medica and pharmacy, public health and forensic medicine. Fee, 9*l.* 9*s.*

Final.—Medicine, surgery, midwifery. Fee, 6*l.* 6*s.*

A five years' curriculum is required. Secretary, Mr. Greenwood Pim, 6 Kildare Street, Dublin.

L.S.A.

The diploma of Licentiate of the Society of Apothecaries entitles the holder to practise medicine. There are two examinations, the Primary and the Final.

Primary.—Biology, chemistry and physics, pharmacy, anatomy, physiology, and histology. Fee, 10*l.* 10*s.*

Final.—Surgery, pathology, medicine, forensic medicine, midwifery, clinical surgery, clinical medicine, and medical anatomy. Fee, 10*l.* 10*s.*

A curriculum of five years is required, particulars of which may be had from the Secretary, Court of Examiners, Apothecaries' Hall, Blackfriars, E.C. The subjects of examination fall like those of the "double qual."

L.A.H.

The Apothecaries' Hall of Ireland gives a licence similar to that of the English Society. There are four professional examinations, viz.:—

First.—Biology, physics, chemistry, pharmacy. Fee, 5*l.* 5*s.*

Second.—Anatomy, materia medica, therapeutics, physiology, histology. Fee, 5*l.* 5*s.*

Third.—Pathology, medical jurisprudence, hygiene. Fee, 5*l.* 5*s.*

Final.—Medicine, surgery, midwifery. Fee, 6*l.* 6*s.*

Address: The Registrar, Apothecaries' Hall, 40 Mary Street, Dublin.

Oxford Degrees.

There are two degrees in medicine and surgery granted by Oxford—viz., B.M. and D.M. (medicine), and B.Ch. and M.Ch. (surgery). It takes at least six or seven years to obtain them. B.M. and B.Ch. are granted only to those who have taken the B.A. degree. There are a Preliminary and two professional examinations:

Preliminary.—Mechanics and physics, chemistry, zoology, botany.

First Professional.—Organic chemistry, anatomy and physiology, materia medica, pharmacy.

Second Professional.—Medicine, surgery, midwifery, pathology, forensic medicine, hygiene.

A B.M. who has entered his thirty-ninth term is admitted D.M. on presentation of a dissertation approved by the appointed professor and examiners.

M.Ch. Degree.—An examination for this degree is held in June. The candidate must have entered his twenty-seventh term.

The fees, together with cost of living and extras, amount to a considerable sum, but valuable scholarships are available.

Cambridge Degrees.

Cambridge grants the degrees of M.B., B.C., and of M.D. and M.C. For the first of these the conditions are that the student must (1) reside in the University during the required portion of each of nine terms, (2) pass (or obtain exemption from) the Previous examination, (3) follow medical study for five years, (4) pass three examinations. These last are:

First.—Chemistry, biology.

Second.—Anatomy, physiology.

Third. — Pharmacology, pathology, surgery, midwifery, practice of physic.

Act for M.B.—After these examinations the student is questioned on a thesis prepared by himself, and on medicine generally, before he is granted his degree.

B.C. degree is granted to candidates who pass the third examination, and without the Act.

M.D.—An M.B. of three years' standing can, by "keeping

an Act" (as shown for the M.B degree), obtain the degree of M.D.

M.C. is granted to those who have obtained the B.C., under certain conditions.

Particulars as to fees, &c., may be obtained on application to the Registrar of the University, The Registry, Cambridge.

Durham Degrees.

These are M.B., M.D., B.S., M.S. A curriculum is required one year of which must be spent at the Durham College of Medicine, Newcastle-on-Tyne, and there are four professional examinations. Particulars of Professor Howden, Medical College, Newcastle-on-Tyne.

London Degrees.

The University of London grants the degrees of M.B. and M.D., also B.S. and M.S. For the M.B. degree four examinations are required: (1) *Matriculation* (see page 433); (2) *Preliminary Scientific* consisting of chemistry and biology, to be passed not less than a year later; (3) *Intermediate* in anatomy, physiology and histology, organic chemistry, materia medica, and pharmaceutical chemistry; this must be passed two years or more after the Preliminary scientific. (4) *M.B. examination* in pathology, therapeutics, hygiene, surgery, medicine, obstetrics, and forensic medicine. This may be passed two years or more after the Intermediate, four years after the Preliminary, and five years after the Matriculation. Honours may be taken in the second, third, and fourth examinations. The fees are: Matriculation 2*l.*, other examinations 5*l.* each. A curriculum of five years must be undergone between the Matriculation and the M.B. examination. Four of these must be subsequent to the Preliminary scientific, at one or more of the medical schools recognised by the University. One year of the four latter must be spent in a school in the United Kingdom. A scheme of "internal" University training is in hand, but is not yet completed.

The *M.D.* degree can be taken by thesis or by special examination at a certain time after passing M.B. The fee is 5*l.*, but in 1905 it will be raised to 20*l.*

The surgery degrees (B.S. and M.S.) are given to Bachelors of Medicine after examination and under certain conditions. Address, the External Registrar, University of London, South Kensington, London, S.W.

Victoria University Degrees.

The colleges of the Victoria University are Owens College, Manchester; University College, Liverpool; and the Yorkshire College, Leeds. The degrees of M.B., Ch.B., and of M.D., Ch.M. are granted. A curriculum of five years is required, and there are three professional examinations for the M.B. degree. This and other degrees are granted under conditions very similar to the London degrees, and the fees are the same as London.

Address the Registrar, Victoria University, Owens College, Manchester.

Birmingham Degrees.

Birmingham University grants the degrees of M.B., Ch.B., M.D., and Ch.M. The first four years of the curriculum must be passed at the University, and there are five professional examinations for M.B., and the usual thesis or examination for the higher degree. Fees, first and second 5*l.* each, third 1*l.*, fourth 3*l.*, final, 5*l.* Dean, Professor Windle, at the University.

Scotch Degrees.

The regulations for all the Scotch universities are identical. Four degrees are conferred—viz., Bachelor of Medicine, Bachelor of Surgery, Doctor of Medicine, and Doctor of Surgery. We give the details of the University of Edinburgh, those of Glasgow, Aberdeen, and St. Andrews being practically the same. A Preliminary examination is required to be passed before entering, the subjects being (1) English, (2) Latin, (3) elementary mathematics, (4) Greek, or French, or German. A five years' curriculum must be passed, and two years must be spent at the University, the remaining three at some other recognised school. Of the sixteen professional subjects at least eight must be taken at the Scotch University, whose degree is desired, or in some university recognised for the purpose by the University Court. There are four professional examinations similar in style and subjects to those required by other medical schools. The full qualification is M.B., B.Ch.

Application for the various Scotch universities should be made to the Dean of the Faculty of Medicine, University of Edinburgh, Glasgow, Aberdeen, or St. Andrews, Dundee.

Irish Degrees.

The University of Dublin (Trinity College) grants the degrees of M.B., B.Ch., and B.A.O. (obstetrics). The conditions and regulations are very similar to those of Oxford, *q.v.* Address: The Registrar, School of Physic, University of Dublin.

The Royal University of Ireland grants two degrees in medicine (M.B. and M.D.), two in surgery (B.Ch. and M.Ch.), and two in obstetrics (B.A.O. and M.A.O). The curriculum is at least five years. Graduates in arts or science under certain conditions are exempted from the first year of study. Matriculation and First university examinations are required from candidates for any degree. These each cover Latin, English, mathematics, natural philosophy, and a language, the "First" going more deeply into the subjects than the Matriculation. For "Bachelor" degrees three professional examinations are required, which may be passed with honours, and the higher degrees are obtained by further special examinations. Fees: Matriculation, 1*l.*; First university examination, 1*l.*; first, second, and third examinations in medicine, each 1*l.*; degrees, 2*l.*; admission to degrees, 10*l.*; higher degrees, each 5*l.*

Women are Admitted

as candidates for degrees or diplomas by the Universities of London, Durham, Edinburgh, Glasgow, Aberdeen, St. Andrews, and Royal University of Ireland, and the Conjoint Boards of the Royal Colleges of Physicians and Surgeons in Scotland and Ireland, and the Apothecaries Hall in Ireland.

Medical Schools.

We give below a list, with a few particulars, of the schools and colleges recognised by the authorities as proper places of tuition for medical students. Further details may be learned by addressing the respective deans or secretaries:—

LONDON.

Charing Cross Hospital, The Medical School, Chandos Street, W.C.—Fees, 115*l.* 10*s.*, or 127*l.* 1*s.* in instalments. There is a reduction made to the sons of registered medical practitioners. Dean, Mr. H. F. Waterhouse.

Guy's Hospital, London Bridge, S.E.—Fees, 157*l.* 10*s.*, or 168*l.* in instalments. Has a residential college, in which rooms cost from 14*s.* to 27*s.* per week, and board 1*l.* 1*s.* per week. Dean, Dr. J. Fawcett.

King's College, Strand, W.C.—Fees for London M.B. curriculum, 148*l.*, or 164*l.* in four instalments. (All students must attend a course of Divinity lectures in the first year, unless exempted.) Dean of the Faculty of Medicine, Professor W. D. Halliburton, M.D.

London Hospital, Mile End, E.—Fees, 126*l.*, or 136*l.* 10*s.* in instalments (sons of medical men 15*l.* 15*s.* less). Contains 786 beds, and is the largest accident hospital in the world. A new block has recently been added for better accommodation and more adequate teaching in the various departments. Warden, Mr. Munro Scott, Turner Street, Mile End, E.

London (Royal Free Hospital) School of Medicine for Women, 8 Hunter Street, Brunswick Square, W.C.—Fees, 125*l.*, or 135*l.* in four instalments. Laboratory-fees, 5*l.* Classes for preliminary scientific M.B. Lond. examinations. Fee, 21*l.* Laboratory-fees, 2*l.* 5*s.* A School Scholarship of 30*l.* for one year and a St. Dunstan's Medical Exhibition of 60*l.* a year for three years (may be extended to five years), are offered in September. Dean, Mrs. Garrett Anderson, M.D.

Middlesex Hospital, Cleveland Street, W.—Fees, 141*l.* 15*s.*, or 147*l.* in instalments. Dean, Mr. J. Murray, F.R.C.S. Residential college, 14*s.* 6*d.* to 17*s.* 6*d.* per week (exclusive of board). Warden, Dr. R. A. Young. The winter session opens on October 1, when an address will be given by Mr. Stephen Paget, M.A., F.R.C.S.

St. Bartholomew's Hospital, West Smithfield, E.C.—Fees, 157*l.* 10*s.*, or 168*l.* in instalments. Has a residence for students. Warden, Dr. J. Calvert. Scholarship examinations September 22.

St. George's Hospital, Hyde Park Corner, S.W.—Fees, 150*l.*, or 160*l.* in instalments, with a dissecting-room charge of 3*l.* 3*s.* per annum. Dean, Dr. Isambard Owen.

St. Mary's Hospital, Cambridge Place, Paddington, W.—Fees for full curriculum, 140*l.*, or 145*l.* in instalments. Dean, Dr. H. A. Caley.

St. Thomas's Hospital, Albert Embankment, S.E.—Fees, 150*l.*, or 157*l.* 10*s.* in instalments. Medical Secretary, Mr. G. Rendle.

University College, Gower Street, W.C.—Fees, 157*l.* 10*s.*, or 162*l.* 15*s.* in instalments. Scholarship examinations September 25, 26. Dean, Professor J. R. Bradford, F R.S. At the opening of the session, on October 1, Mr. Percy Flemming, F.R.C.S., is to give the introductory leeture.

Westminster Hospital, Caxton Street, S.W. — Fees, 115*l.* 10*s.*, or 141*l.* 15*s.* in six instalments. Dean, Dr. Gossage. Scholarship examinations are to be held on September 22 and 23, 1902, and April 22 and 23, 1903.

English Provinces.

Aberystwyth and **Bangor,** as far as the First Professional examination is concerned.

Birmingham.—*University Faculty of Medicine.* Fees (complete for double qualification, including dissections), 183*l.* 6*s.* Dean, Professor Bertram C. A. Windle.

Bristol.—*University College.*—Fees, 68*l.* 5*s.*, or 57*l.* 15*s.* with extras (in one sum). Dean, Professor E. Markham Skerritt, M.D.

Cambridge.—*University Medical School.* Apply to the Registrar, the University Registrary, Cambridge.

Cardiff.—*University College.*—Instruction goes up to and includes Intermediate M.B. Lond. Fees, 57*l.* 10*s.*, or for Conjoint Board 40*l.* Dean, Dr. A. Francis Dixon, B.A.

Leeds.—*Yorkshire College, Victoria University.*—Fees for M.B., Ch.B. Vic. and diplomas 67*l.* 4*s.*, hospital 42*l.*, fevers and vaccination 2*l.* 12*s.* 6*d.* (111*l.* 16*s.* 6*d.*), Preliminary Scientific year 27*l.* 7*s.* 6*d.* and 17*l.* 18*s.* 6*d.* respectively. Dean, de B. Birch, M.D.

Liverpool.—*University College.*—The following estimate of the cost of medical education at this College is given in the prospectus:—Composition fees: Science course, 24*l.* 15*s.*; medical course, 60*l.*; Infirmary course, 42*l.*; necessary extra classes, 20*l.*; examination-fees for M.B. Vic., 15*l.*; books and instruments, 50*l.* Total, 211*l.* 15*s.* Dean, Professor Paterson.

Manchester.—*Owens College.*—Fees for M.B. Vie., 138*l.* 5*s.*, exclusive of special courses. Dean, Professor William Stirling, M.D.

Newcastle-on-Tyne.—*Durham College of Medicine.*—Fees, 99*l.* 15*s.*, with some extras. Secretary, Professor Robert Howden.

Oxford has an excellent school of medieine.

Sheffield.—*University College* (Department of Medicine).—Fees, about 110*l.* Dean, Dr. W. T. Cocking, Leopold Street.

Scotland.

Aberdeen.—*University Faculty of Medicine.*—Fees, about 100*l.* Secretary, Mr. Donaldson R. Thom, M.A.

Dundee.—*University College.*—Classes and hospital practice for the degree of M.B. and degree in Public Health. The college is affiliated to St. Andrews University. Secretary, Mr. R. N. Kerr.

Edinburgh.—*University Faculty of Medicine.*—Minimum class and hospital fees, 115*l.* Dean, Professor A. R. Simpson.

School of Medicine of the Royal Colleges.—The minimum cost of the education at this school for the triple qualification, including examination-fees, is 115*l.*, which is payable by instalments during the period of study. There are special classes for women Secretary, Mr. R. N. Ramsay, solicitor, 24 Forrest Road, Edinburgh, who will forward the calendar of the school gratis.

Glasgow.—*University Faculty of Medicine.*—Fees about 120*l.* Dean, Professor McCall Anderson.

Anderson's College Medical School, Dumbarton Road.—Fees for Scottish triple, about 70*l.* Communications to Dr. Alex. Duncan, Faculty Hall, 242 St. Vincent Street, Glasgow.

Queen Margaret College, Hamilton Drive, Glasgow (Glasgow University School of Medicine for Women). Fees for M.B., about 99*l.* Hon. Secretary, Miss Galloway.

St. Mungo's College, 86 Castle Street.—Fees for triple qualification, about 72*l.* The Dean will supply a detailed syllabus.

St. Andrews University.—*Faculty of Medicine.*—The subjects for the whole of the curriculum are taught. (*See also Dundee.*) Fees, 3*l.* 3*s.* per subject. Secretary and Registrar, Mr. J. E. Williams.

Ireland.

Belfast.—*Queen's College.*—Fees, about 95*l.* Registrar, Dr Johnson Symington.

Cork.—*Queen's College.*—Fees (for M.B., R.U.I.), about 85*l.* Registrar, Mr. Alexander Jack, M.A.

Dublin.—*Catholic University Medical School,* Cecilia Street, Dame Street.—Minimum cost of lectures, hospitals, special courses, and examination may be put as follows: Royal University, 160*l.*; Conjoint Colleges, 162*l.*; Apothecaries' Hall, 141*l.* A capital Guide to the Medical Examinations is issued by the Registrar, Dr. A. Birmingham.

School of Physic in Ireland (Trinity College).—Fees, 149*l.* 6*s.* 6*d* Registrar, H. W. Mackintosh, M.A., Trinity College.

Royal College of Surgeons in Ireland.—Schools of surgery, including Carmichael and Ledwich Schools. Total expense of triple qualification 166*l.* 19*s.*, made up of school-fees 69*l.* 6*s.*, hospital-fees 55*l.* 13*s.*, and examination-fees 42*l.*

Galway.—*Queen's College.*—Fees, as at Cork. Registrar, Professor Townshend.

Dentistry.

THE practice of dentistry, so far as the assumption of titles is concerned, is controlled by the Dentists Act, 1878, which provides for the registration of persons specially qualified to practise as dentists in the United Kingdom, and empowers the General Medical Council to register such persons and to formulate generally the nature of the qualifications which they should possess. The examination of candidates for diplomas is in the hands of the Royal Colleges of Surgeons in England, Scotland, and Ireland, and candidates for a diploma are required to produce certificates of having been engaged during four years in professional studies, including three years' instruction in mechanical dentistry from a registered practitioner or in some dental hospital. Dental students must pass the Preliminary examination in general education like medical students, and on commencing studies must register as students of dentistry with one of the Registrars (see page 444).

The course laid down by the Medical Council includes, as general medical subjects, chemistry, anatomy, physiology, surgery, medicine, and clinical work; and, as special dental subjects, dental anatomy and histology, dental surgery and pathology, dental mechanics, two years' attendance at a dental hospital, and three years' instruction in mechanical dentistry as already mentioned (this last may be taken either before or after registration as a student). The following diplomas can be obtained:—

Royal College of Surgeons, England.—Dental surgery.
Royal College of Surgeons, Edinburgh.—Dental surgery.
Faculty of Physicians and Surgeons, Glasgow.—Dental surgery.
Royal College of Surgeons, Ireland—Dentistry.
University of Birmingham.—Bachelor of Dental Surgery.
Several American Universities.—Doctor of Dental Surgery.

The British diplomas all require the curriculum above quoted.

L.D.S.Eng.

A *Preliminary Science Examination* must be passed, consisting of chemistry, physics, and practical chemistry. This may be studied for prior to registration, but is passed after being registered as a dental student. Fee, 3*l.* 3*s.*

The First Professional is in mechanical dentistry and dental metallurgy, and is taken after the three years' training and six months at a dental hospital and school. Fee, 2*l* 2*s.*

The Second Professional comes at the end of the four years' curriculum, not less than six months after the first and the student must be 21 years of age. It is written

practical, and oral. The written examination comprises general anatomy, physiology, pathology, and surgery, dental anatomy and physiology, dental pathology, and dental surgery. The oral comprises the same subjects, and is conducted by the use of preparations, casts, drawings, &c. In the practical portion students are examined in dental caries, and may be required to fill cavities, &c.; their knowledge is also tested with regard to the irregularities of children's teeth. Fee, 5*l.* 5*s.* A further 10*l.* 10*s.* is paid for the diploma. Particulars may be had of the Secretary, Examination Hall, Victoria Embankment, W.C.

L.D.S.Edin.

The requirements are practically the same as in England. There are only two examinations, which are taken subsequent to registration as a dental student. Anatomy, chemistry, physics, and physiology are included in the first examination, the remaining subjects coming under the second. Fees, 15*l.* 15*s.* Address: Mr. James Robertson, Clerk to the Royal College of Surgeons, 48 George Square, Edinburgh.

L.D.S.Glasg.

The examinations and fees for this are the same as in Edinburgh. Address: Mr. A. Duncan, B.A., 242 St. Vincent Street, Glasgow.

L.D.S.Irel.

Three examinations are required—namely, *Preliminary* (in general education), *Primary Dental*, and *Final Dental*. The conditions and requirements are essentially the same as the preceding. Fees (exclusive of Preliminary), 21*l.* Candidates whose names are on the *Dentists' Register* are granted the diploma *sine curriculo* on passing the Final examination and producing certain certificates as to their practice, skill, moral character, &c.

B.D.S. Birmingham.

The University of Birmingham grants the degrees of Bachelor and Master of Dental Surgery. Candidates must pass the Matriculation examination required from medical candidates, they must have a licence in dental surgery from some body legally entitled to grant such, and this licence must have been obtained at least twelve months previous to taking the degree, six months of this time being spent in the dental department of a hospital approved by the University. The candidate must also produce evidence that he has attended the following medical courses as required of medical students at the University, and passed the examinations held in the same for medical and surgical degrees: Chemistry, practical chemistry, physics, comparative anatomy, anatomy, physiology. Also that he has attended courses as follows: One course of lectures on medicine, one on surgery, special courses on the surgery and medicine of the mouth, pathology and bacteriology, dental histology and comparative anatomy, dental surgery and prosthetic dentistry. The examination deals with the above subjects as far as they relate to dentistry. The M.D.S. degree can be taken by thesis twelve months later. The cost of B.D.S. (class and examination fees) is 176*l.* 4*s.* 6*d.*

D.D.S.

This American degree is granted by some universities in the United States. It is not registrable in this country. Those degrees most valued can only be obtained after two years' residence (*i.e.*, two winter sessions) in the case of dentists registered in this country; three years if previously unqualified. The chief value of the degree is that it enables one to obtain practical acquaintance with American dentistry. Some years ago certain American degrees were accepted by the General Medical Council, but this has been stopped. The following are the more important dental schools in the United States, but they are not all connected with the universities:—

Harvard University. Address, E. H. Smith, 283 Dartmouth Street, Boston, Mass.

Michigan University Dental College. Address, J. Taft, Ann Arbor, Mich.

Baltimore College of Dental Surgery. Address, Dr. M. W. Foster, 9 West Franklin Street, Baltimore Md.

New York Dental School (University of N.Y.). Address, Dr. C. M. Ford, 218 West 135th Street, New York.

University of Pennsylvania. Address, Dr. E. C. Kirk, Dental Hall, cor. 33rd and Locust Streets, Philadelphia, Pa.

Columbian University. Address, Dr. J. H. Lewis, 1023 Vermont Avenue, N.W. Washington, D.C.

North-Western University Dental School. Address, Dr. W. E. Harper, 146 Franklin Street, Chicago, Ill.

The cost of the curriculum is generally: Matriculation, $5; class-fees each year, $100; dissecting-fee, $10; and diploma-fee, $30, besides books and instruments. Board can be obtained at from $4 to $6 per week in most American cities.

It should be clearly understood that the law does not prohibit any person from performing dental operations or practising dentistry, but if such persons by any name, title, addition, or description, hold out that they are specially qualified to practise dentistry, they become liable, on conviction, to a fine not exceeding 20*l.* An unregistered person cannot call himself "dentist" or "dental practitioner," but registered medical practitioners may.

APPROVED DENTAL SCHOOLS.

London.

Charing Cross Hospital, The Medical School, Chandos Street, W.C. Dental curriculum, 54 guineas or 60 guineas in instalments. Dean, Mr. H. F. Waterhouse.

Guy's Hospital Dental Department and School, London Bridge, S.E.—Fees for L.D.S.Eng., 110*l.* (or 115*l.* 10*s.* in two instalments), payable on entrance. Dean, Dr. J. Fawcett.

London School of Medicine for Women, 8 Hunter Street, Brunswick Square, W.C.—Classes for dental students. Fee, 60*l.* Laboratory fees, 2*l.* 10*s.*

National Dental Hospital and College, Great Portland Street, W.—The well-appointed bacteriological laboratory offers unusual facilities. Fees for complete curriculum, 43*l.* 1*s.* Dean, Sydney Spokes.

Royal Dental Hospital of London, Leicester Square, W.C.—Fees for dental part of curriculum, 50*l.*, in instalments 52*l.* 10*s.* Single courses may be taken. Dean, Mr. Morton Smale.

Provincial.

Birmingham.—*University Dental Department.*—Fees, for L.D.S. 60*l.*, and B.D.S. 75*l.* (excluding hospital-fees). Dean, Professor B. C. A. Windle.

Dublin.—*School of Dentistry*, 25 Lincoln Place.—Apprentices received, premium 100*l.* Fees for L.D.S.Irel., 81*l.* 18*s.* Acting Dean, Dr. A. W. W. Baker.

Edinburgh.—*Dental Hospital and School*, 31 Chambers Street.—Fees, 74*l.* 12*s.* Dean, Mr. W. Guy, 11 Wemyss Place.

Liverpool.—*University College School of Dental Surgery.*—Apprenticeship premium, 105*l.* Fees for L.D.S., 81*l.* 10*s.* Dean, Professor A. M. Paterson.

Manchester.—*Owens College Dental Department.*—Apprenticeship premium, 105*l.* Fees for L.D.S., 81*l.* 10*s.* Dean, Professor William Stirling, M.D.

Partial tuition in dental subjects or hospital practice may also be received at the following:—

Devon and Exeter Dental Hospital, Exeter. Hon. Secretary, Mr. Henry Yeo.

Plymouth Dental Hospital, Bank Street Chambers, Bank Street, Plymouth. Hon. Secretary and Treasurer, Mr. E. A. Bennett.

Glasgow Dental Hospital and School, 5 St. Vincent Street. Address, Mr. D. M. Alexander, 97 West Regent Street, Glasgow.

Institute of Dental Technology and School of Mechanical Dentistry, 4 Langham Chambers, All Souls' Place, London, W. Principal, Mr. George Cunningham, M.A.Cantab., D.M.D. Harvard Univ., L.D.S., R.C.S.Eng.

The following general hospitals also provide hospital practice:—

London Hospital and Medical College, Middlesex Hospital, King's College, Strand, W.C., St. Bartholomew's Hospital and College, St. George's Hospital, St. Thomas's Hospital, University College Hospital, and Westminster Hospital, besides the principal hospitals in the provinces.

Veterinary Surgery.

VETERINARY surgery is affected by many chemists, especially in country districts, and sometimes pharmaceutical students branch off into this profession. The Veterinary Surgeons Act came into force in 1881, and protects the titles of registered veterinary practitioners. It, however, gives them no monopoly of veterinary practice, and it has been decided by the High Court that a registered chemist may use the title "veterinary chemist." The Royal College of Veterinary Surgeons, 10 Red Lion Square, London, W.C., has made regulations for the diploma M.R.C.V.S., in which the candidate (1) must pass the Preliminary examination recognised by the General Medical Council, *or* the Veterinary Preliminary examination of the Educational Institute of Scotland. This latter body holds examinations in London, Edinburgh, Glasgow, and Dublin simultaneously, three times in the year. The examination comprises Latin, mathematics, English, and either Greek, French, German, Italian, or any modern language, and logic. Particulars from Dr. A. Mackay, 40 Princes Street, Edinburgh. (2) The candidate must study at a recognised veterinary school for four years, during which time he must (3) pass four professional examinations as follows:—

Examination A.—Anatomy of domesticated animals: bones, ligaments, joints. Chemistry and elementary physics. Biology: elementary zoology and botany.

Examination B.—Anatomy of domesticated animals. Histology and physiology. Stable management and manipulation of domesticated animals. Principles of shoeing.

Examination C.—Morbid anatomy, pathology, and bacteriology. Materia medica, pharmacy, therapeutics, and toxicology. Veterinary hygiene and dietetics.

Examination D.—Principles and practice of veterinary medicine and surgery. Clinical medicine, surgery, and obstetrics (horse and other domesticated animals). Meat-inspection.

(4) The candidate must be 21 years of age when entering for D.

The examinations are conducted by a Board of Examiners, which visits Edinburgh, Glasgow, Dublin, and London towards the end of the College terms (May and December). A fee of 5*l.* for each examination has to be paid to the Royal College at a specified date before the examination, and after the fourth is passed 1*l.* is paid for registration.

The following are the institutions which instruct students for the examinations. It should be noted that these are in no way connected with the Royal College of Veterinary Surgeons, which is an examining and not a teaching body.

Royal Veterinary College, Great College Street, Camden Town, London, N.W.—Educational fee, 80*l.*, paid in four instalments, and 2*l.* 12*s.* 6*d.* library fees. There are also fees for occasional students as follows: Anatomy, 8*l.* 8*s.*; botany, 3*l.* 3*s.*; chemistry, 5*l.* 5*s.*; pathology, 5*l.* 5*s.*; physiology, 5*l.* 5*s.*; practical chemistry, 3*l.* 3*s.*; practical histology, 3*l.* 3*s.*; practical pathology, 5*l.* 5*s.*; surgery, 5*l.* 5*s.*; and veterinary medicine, 5*l.* 5*s.* Principal and Dean, Professor John McFadyean, M.R.C.V.S. Secretary, Mr. R. A. N. Powys.

Royal (Dick) Veterinary College, Clyde Street, Edinburgh.—Matriculation and class fees, 58*l.* 16*s.*, in four payments. Prospectus on application. Principal, Professor J. R. U. Dewar, F.R.C.V.S.

The New Veterinary College, Leith Walk, Edinburgh.—Matriculation and class fees, 58*l.* 16*s.*, in four payments. Principal, Professor Owen Williams, F.R.C.V.S.

Glasgow Veterinary College, Buccleuch Street, Garnethill, Glasgow.—Fee, 60*l.*, or 63*l.* in instalments. Principal, Professor J. McCall, F.R.C.V.S. Secretary, Mr A. M. Dickie.

Royal Veterinary College of Ireland, Pembroke Road, Dublin.—Fees, 21*l.* a session, with 1*l.* 1*s.* entrance-fee. Principal, Professor A. E. Mettam, B.Sc. The new buildings are now quite finished, and the equipment is most modern and unsurpassed.

Holders of the diploma M.R.C.V.S. who have been a certain time in practice may obtain by thesis the title of F.R.C.V.S. Army veterinary appointments are open for competition: commencing salary is 250*l.* a year, with rank of lieutenant, increasing by advancement to 850*l.*—the salary of the principal veterinary surgeon, who holds rank as colonel. An interesting account of the vet.'s duties on board a horse-ship was printed in The Chemist and Druggist of July 26, 1902.

Science.

WHILE there are many pharmacy students who prefer the science to the practice of their calling, and who, in consequence, continue the study of science for its own sake, it is chiefly as a professional occupation that we have to consider it.

How to Become an Analytical Chemist

is a question very frequently put to us, and in this article we will endeavour to answer the question briefly. It must be stated at the outset that the work of an analyst is at best an uphill struggle. Unless a man is possessed of sound judgment, skill in manipulation, and has a special knowledge of some particular line, such as oils, leathers, explosives, &c., he can never hope to have any position in his profession beyond the level of the very ordinary. There is no legal restriction to the practice of chemical analysis; anyone who chooses may set up as an analyst. The title "analytical chemist" can only be used in strict law by persons qualified as chemists under the Pharmacy Act, 1868. The practice of analysis, although legally open, is, however, regulated to some extent by

The Institute of Chemistry,

which was founded in October, 1877, and incorporated by Royal Charter in June, 1885, (1) to promote the better education of persons desirous of becoming public and technical analysts and chemical advisers on scientific subjects; (2) to examine candidates, and to grant certificates of competency; and (3) to elevate the profession of consulting and analytical chemistry by setting up a high standard of scientific and practical proficiency, and by insisting on the observance of strict rules in regard to professional conduct.

Studentship.—Every candidate for admission to the studentship is required to produce evidence that he is upwards of 17 years of age, and that he has passed a Preliminary examination in subjects of general education recognised by the Council of the Institute.* He must also show that, at the time of making application for registration, he is working at a College or University approved by the Council, or in the laboratory of a Fellow of the Institute. Although at present it is not compulsory for any candidate to register as a student, such registration is advisable in view of the circumstance that a registered student is required to fulfil only those regulations which are in force at the time of his registration.

Intermediate Examination.—Candidates for admission to the Intermediate examination are required to produce evidence (I.) of having passed an approved Preliminary examination in subjects of general education; (II.) of having regularly attended systematic *day* courses, in a college or institution recognised by the Council, during at least *three academic years*, in theoretical and practical chemistry, and courses in physics, mathematics, and one of the following subjects, in accordance with the regulations of the Institute: (i.) advanced mathematics, (ii.) mechanics and chemical engineering, (iii.) metallurgy, (iv.) geology and mineralogy, (v.) physiology, (vi.) bacteriology; and (III.) of having satisfactorily passed the Class examinations in all the subjects required to be taken. As an alternative in the matter of training (II.), a candidate may take *two years'* training in a recognised institution as indicated above, *and* work systematically for *two other years* in the laboratory of a Fellow of the Institute. A candidate who has taken a degree in science, including inorganic and organic chemistry, physics, and mathematics, in a recognised university, is eligible for admission to the Intermediate examination. The examination in theoretical and practical chemistry extends over at least four days. The theoretical part of this examination requires a thorough acquaintance with the fundamental laws of chemistry; with the methods of preparation of the more important elements, and compounds both inorganic and organic; with the principles of chemical classification, and the current theories of chemical science. The

* A number of examinations in this list are no longer recognised unless passed prior to December 31, 1901, and that of the Educational Institute of Scotland must be passed prior to December 31, 1902. Full particulars can be had from the Secretary.

practical part may include exercises in qualitative and quantitative inorganic analysis, qualitative and quantitative organic analysis, gas-analysis, preparation of pure materials, physical determinations, the use of the spectroscope, the microscope, the calorimeter, and the polariscope, and other experimental work set forth in the Regulations. At the same time the candidate is required to submit notebooks containing records of the practical work performed by him during the last two years of his training, the contents being taken into acount by the examiners in deciding the examination. Holders of certain degrees or diplomas are exempt from passing the Intermediate, and, by virtue of their qualifications, are eligible for admission to the Final examination direct.

Exemptions.—Candidates may claim exemption from the Intermediate examination:—

1. If they have passed any of the following examinations prior to October 1, 1902:—B.A. (Honours) at Oxford or Cambridge, in the subject of chemistry; B.Sc. (Honours) in Chemistry, at Dublin, Durham, Edinburgh, Glasgow, Aberdeen, St. Andrews, London, the Victoria University, or the University of Wales; B.Sc. (in Chemistry) in the Royal University of Ireland; the Senior Moderatorship in Experimental Science in the University of Dublin; the Associateship of the City and Guilds of London Central Institute, or of the Royal College of Science (London), in the department of chemistry; the Associateship of the Royal College of Science, Dublin, in the Faculty of Manufactures, together with a certificate that the candidate has spent six months exclusively in the chemical laboratory.

2. If they pass B.Sc. with Honours in Chemistry in the University of London, under the regulations in force prior to January 1, 1903.

3. If they pass one of the following examinations after October 1, 1902, in the class or division specified:—A First or Second Class in the Final Honour School of Natural Science of the University of Oxford or Cambridge in the subject of Chemistry; B.Sc., with Honours in Chemistry, in the Victoria University or the University of Wales; Bachelor of Science, with Special Distinction in Chemistry, in the Universities of Aberdeen, Edinburgh, Glasgow, and St. Andrews; B.A., with B.Sc. or M.A (involving Inorganic and Organic Chemistry), in the Royal University of Ireland; the Senior Moderatorship in Experimental Science in the University of Dublin; B.Sc. in the University of Durham, or in the University of Birmingham, in the subjects of Chemistry and Physics.

4. If they pass the examination for one of the following diplomas (after October 1, 1902), and also an approved Preliminary examination in accordance with the regulations:—The Associateship of the City and Guilds of London Central Institute (A.C.G.I.), in Chemistry; the Associateship of the Royal College of Science (Assoc.R.C.Sc.), London, in Chemistry; and the Associateship of the Royal College of Science, Dublin (Assoc.R.S.Sc.I.), in the Faculty of Manufactures, together with a certificate that the candidate has spent six months exclusively in the chemical laboratory.

Note.—The regulation requiring associates of the Royal Colleges of Science (London and Dublin) and associates of the City and Guilds of London Institute to pass an approved Preliminary examination, will not be enforced in the case of those who produce evidence satisfactory to the Council that they entered on a systematic course of training in chemistry at a recognised college prior to July 1, 1902.

Final Examination for the Associateship (A.I.C.).—Any candidate who has passed the Intermediate examination, or who is entitled to claim exemption from passing the Intermediate examination, is eligible for admission to the Final examination. This extends over at least four days. The candidate is expected to possess, in addition to a general knowledge of all branches of chemistry, a *thorough* knowledge of one branch of chemistry, to be selected by himself from the following list: (*a*) Mineral chemistry; (*b*) metallurgical chemistry; (*c*) physical chemistry; (*d*) organic chemistry; (*e*) analysis of food and drugs and of water, including the examination and analysis of any food or drug within the meaning of the Sale of Food and Drugs Acts, the assay of alkaloids, the recognition of poisonous chemicals and crude drugs, the use of the microscope in the detection of impurities in food, drugs, and water, &c. (candidates are required to show a general knowledge of the therapeutic effects of chemicals and drugs); (*f*) biological chemistry. In this examination the candidate is at liberty to present a thesis upon any chemical subject to which he may have paid special attention, and, if approved, this may be taken as part of the examination. The examiners are at liberty to apply any test which they think desirable in order to obtain evidence as to the knowledge of theoretical and practical chemistry possessed by the candidate.

Any candidate desiring to qualify himself for appointment as public analyst is recommended to take a course of instruction in therapeutics, pharmacology, and microscopy, and to pass the Final examination in Branch E.—viz., the analysis of food and drugs, and of water, including an examination in therapeutics, pharmacology, and microscopy. The examination is conducted on lines approved by the Local Government Boards for England and Wales, Scotland, and Ireland, who accept the certificate of Fellowship or Associateship of the Institute as sufficient documentary evidence of the qualifications requisite for appointment to the office af public analyst.

Intermediate and Final examinations are held each year in January and July, except the Final examination in Branch (*f*)—biological chemistry—which is held in October.

Fellowship (F.I.C.).—For admission to the Fellowship, an Associate is required to have been registered for three years, and to have been continuously engaged during that period in the study and practical work of applied chemistry in a manner satisfactory to the Council.

Fees.

	£	s.	d.
Registration (annual)	0	5	0
Intermediate examination	3	3	0
Final examination	4	4	0
Ditto for those exempted from passing the Intermediate	7	7	0
Fellowship examination	10	10	0
Special examination in therapeutics, pharmacology, and microscopy	2	2	0
Entrance-fee to Fellowship—			
Prior to December 31, 1902	4	4	0
After December 31, 1902	5	5	0
Ditto for Associates elected as such after January 1, 1898—			
Prior to December 31, 1905	4	4	0
After December 31, 1905	5	5	0
Annual subscription...	1	1	0

Full particulars are given in "The Book of Regulations," published by Messrs. Blundell, Taylor & Co., 173 Upper Thames Street, London, E.C. Price 1*s*. The laboratories and offices of the Institute are at 30 Bloomsbury Square, London, W.C., and communications should be sent to the Registrar at that address.

Science Degrees.

Within the last twenty years scientific education in this country has advanced by leaps and bounds, and it is no longer necessary to go to Germany for chemical training, the training obtainable in our own country being sufficient for a degree, but a post-graduate course at a continental university may be taken later.

B.Sc. London

is the most popular science degree, and can be obtained *sine curriculo*. The London Matriculation examination (see page 432) has to be passed, and the candidate must be 18 years of age before entering upon the Intermediate examination, which cannot be taken until at least one year after passing the Matriculation. In this the candidate must select four out of the following six subjects: (1) Pure mathematics, (2) mechanics, (3) experimental physics, (4) chemistry, (5) botany, (6) zoology. The four subjects must be passed at one time, the fee being 5*l*., and honours may be taken in any one or more of the subjects, except mechanics. The examination is held on the second Monday of July, in London and the provinces, and is written and practical.

One year after passing the Intermediate and three years after the Matriculation the candidate may enter for the B.Sc. examination, in which he must pass three out of ten subjects—*i.e.*, the six of the Intermediate, together with animal physiology, geology, psychology, and logic. He may enter for a pass or for honours. The examination is a very thorough one, the chemistry portion including for a pass two papers dealing with (1) history of chemistry, (2) physical chemistry, (3) general theorctical chemistry, (4) chemistry of carbon compounds, besides a one-day Practical examination in (1) qualitative analysis, (2) quantitative operations, and (3) preparation of pure substances. For honours this portion lasts two days, and is more thorough. The examination is held on the fourth Monday of October, in London. Fee, 5*l*.

The degree of D.Sc. may be taken by thesis two years later. Fee, 10*l.*

Full particulars from the External Registrar, University of London, South Kensington, London, S.W.

Other B.Sc.s.

Degrees in science are also granted by the Victoria University, the University of Birmingham, the University of Durham, Aberdeen, Edinburgh, and Glasgow Universities, and the Royal Irish University—the last-named university *sine curriculo*, but the other universities require attendance at the university classes or other recognised schools for a period of three years in prescribed subjects, a portion of the curriculum (at least one year) being obtained at the university granting the degree. It is also necessary to pass the Matriculation or Entrance examinations in general education of the respective universities, or to produce evidence of having passed a recognised equivalent examination. Unlike the London University, these others give a special technical character to their degrees by adapting the requirements to particular occupations—*e.g.*, agriculture, brewing (in Birmingham only), hygiene, engineering, and chemical science.

Further particulars respecting these may be obtained from the universities or affiliated schools mentioned in the list given on page 447.

THE BOARD OF EDUCATION

is the Government Department at South Kensington, London, S.W., which is charged with the establishing, conducting, and inspecting of schools and classes which earn grants for science and art education. Such schools and classes are situated in every fair-sized town of the Kingdom, and are an excellent means of getting a foundation of scientific knowledge. Among the subjects taught, and in which examinations are held, are the following:—

Geometry, machine-construction, building-construction, applied mechanics, steam, naval architecture, mathematics, theoretical mechanics (solids and fluids), sound, light, and heat, magnetism and electricity, physiography, chemistry (inorganic and organic), metallurgy, geology, mineralogy, human physiology, general biology, zoology, botany, hygiene, agricultural science, and rural economy.

Examinations in all these subjects are held yearly in April and May for the evening classes, and in June for the day classes, and upon the results depend the grants to teachers or institutions, although payments are also made for attendance and equipment. To students who attend twenty-five lessons and pass an examination a certificate is awarded, book-prizes being added in the advanced stages, and bronze medals in the honours stages. Besides there are awarded annually National scholarships and Free studentships to the best students in each of certain groups, while Royal exhibitions are awarded to those who also obtain a success in advanced practical mathematics, or in the second or some higher stage, or a pass in honours.

A Royal exhibition entitles the holder to an allowance of 50*l.* a year, and free admission to lectures and laboratories and instruction during the three years necessary for completing the Associateship course in the Royal College of Science, Loudon, or the Royal College of Science, Dublin. Seven open each year.

A National scholarship entitles the holder to an allowance of 25*s.* a week for the session of about forty weeks each year, and free admission to lectures and laboratories and instruction during the three years necessary for completing the Associateship course at either the Royal College of Science, London, or the Royal College of Science, Dublin, at the option of the holder. Twenty-one open each year.

A Free studentship entitles the holder to free admission to the lectures and laboratories and to instruction during the three years necessary for completing the Associateship course in the Royal College of Science, London. Six open each year.

Third-class railway-fare is allowed by the Board for one journey to and fro each session, between the home of the Royal exhibitioner or National scholar and London or Dublin, as the case may be. Third-class railway-fare is allowed by the Board for one journey to London to holders of Free studentships upon their taking up their Free studentship.

Several of our most distinguished living British chemists owe their rise in life largely to the assistance which these scholarships have been to them. The training in the Royal Colleges of Science is the best of the kind. Local teachers will give inquiring students further information about the matter. The particulars are detailed in the official Directory for conducting schools and classes in connection with the Board of Education, obtainable from Eyre & Spottiswoode, East Harding Street, Fleet Street, London, E.C.; John Menzies & Co., 12 Hanover Street, Edinburgh, and 90 West Nile Street, Glasgow; or Hodges, Figgis & Co. (Limited), 104 Grafton Street, Dublin—price, Part I. 2*d.*, Part II. 4*d.*; the second part gives schedules of subjects.

CITY AND GUILDS OF LONDON INSTITUTE.

The most typical establishments for technical education in this country, and the first in the field, are the Central Technical College, Exhibition Road, S.W., and the Technical College, Leonard Street, Finsbury, E.C. These are supported by the Ancient Corporations and the City of London, founded in 1878 under the title of "City and Guilds of London Institute." The head offices are Gresham College, Basinghall Street, E.C. The College in Exhibition Road is for higher instruction of a university character in mechanics and mathematics, civil, mechanical, and electrical engineering, and chemistry. The curriculum extends over three years, and a Matriculation examination is required on entering. The following description of the chemical course gives a fair idea of a typical curriculum in chemistry:—

First Year.—Daily lectures and practice in chemistry, physics, mathematics, engineering drawing, laboratory of mechanics, and engineering workshop.

Second Year.—Daily lectures and practice in chemistry, engineering, crystallography, and engineering design.

Third Year.—Students spend one day per week during the Winter Term in either the civil and mechanical engineering or electrical engineering department. They attend the courses on crystallography and physical chemistry, which last throughout the session, and, if desirable, also a mathematics class. The remaining time is spent in the chemical laboratory. As soon as students have acquired the necessary proficiency as analysts and sufficient skill in preparing pure substances, they are encouraged to undertake an original investigation.

The department of electrical engineering at this College is excellent for those who are qualifying for that profession. An associateship in each department is granted.

The City and Guilds Central Technical College has been recognised as one of the schools of the reconstituted University of London. The arrangements for the Matriculation and Degree examinations are at present under consideration. Persons, however, who have passed any Matriculation examination of the University and who enter the College are considered by the University as internal students, and will be entitled to take any special examination instituted by the University for such students. It is probable that the Intermediate and B.Sc. examinations in engineering will be conducted in more or less agreement with the courses of instruction at the College.

The Finsbury College is an intermediate one, in which courses of day instruction are arranged in mechanical and electrical engineering and chemistry, and evening-classes in the same subjects and in applied art.

The Institute also has an art school in Kennington Park Road, and holds technological examinations throughout the provinces yearly.

Most University Colleges in the country also have definite curricula for science students, and grant an associateship to those who qualify by passing the requisite examinations.

METROPOLITAN SCIENCE SCHOOLS.

CENTRAL TECHNICAL COLLEGE, Exhibition Road, S.W.—There are three diploma courses: (1) Civil and mechanical engineering, (2) electrical engineering, (3) chemistry. The fees for the courses amount to 30*l.* a session. For prospectuses and information apply to the Dean.

TECHNICAL COLLEGE, Leonard Street, City Road, E.C.—The course extends to two years, except in the case of applied chemistry, which occupies three years, the fees being 15*l.* a session. Evening classes are held at moderate fees. Communications are to be addressed to the Principal.

UNIVERSITY COLLEGE, Gower Street, W.C.—Faculty of science. The whole of the subjects for B.Sc. are taught, and the lecture-fees are from 4*l.* 4*s.* to 7*l.* 7*s.* per course per subject. Practical chemistry 26*l.* 5*s.* per session. Secretary, T. Gregory Foster, Ph.D.

KING'S COLLEGE, Strand, W.C.—Fees are about the same as at University College. Evening classes are held.

City of London College, White Street, Moorfields, E.C.—Evening classes in all science subjects; fees for members 4*s*., for non-members 7*s*., per course of lectures; the course extends from October to May. Laboratory practice is 17*s*. and 20*s*.

Evening classes in science subjects suitable for the Minor and B.Sc. are held at the Polytechuic, Regent Street, W.; the Polytechnic Institute, Borough, S.E.; the People's Palace, Mile End Road, E.; the Northern Polytechnic, Holloway, N.; Technical College, Chelsea; the Carpenters' Institute, Stratford, E.; Goldsmiths' Company's Technical and Recreation Institute, New Cross, S.E.; Birkbeck Institute, Bream's Buildings, Chancery Lane, E.C.; and West Ham Technical Institute, Romford Road, Stratford. The education provided at these institutions is exceptionally good, some of them specially catering for chemists' assistants.

PROVINCIAL SCIENCE SCHOOLS.

Aberystwyth.—*University College of Wales.*—Composition fee for the science course, 10*l*. per session, with extra fees for practical work. Registrar, Mr. T. Mortimer Green. A hostel for men students has just been opened.

Bangor.—*University College of North Wales.*—Terms as at Aberystwyth. Secretary and Registrar, Mr. J. E. Lloyd.

Barrow-in-Furness.—*Technical Schools, Abbey Road.*—Evening classes in science and technology. Secretary, Mr. C. F. Preston, Town Clerk.

Belfast.—*Queen's College.*—There is a science division of the faculty of arts where instruction for science degrees of the Royal University Ireland can be had. The fee for each course is generally 2*l*. Registrar, Dr. Johnson Symington.

Birmingham.—*University.*—Courses are conducted in physics, chemistry, metallurgy, and botany. The lecture-fees in chemistry are 1*l*. 11*s*. 6*d*. to 5*l*. 5*s*. per course. Laboratory fees from 2*l*. 12*s*. 6*d*. per course.

Municipal Technical School, Suffolk Street.—Evening classes. Lecture-fees 2*s*. 6*d*., laboratory 5*s*. per subject. Secretary, Mr. George Mellor.

Bradford.—*Municipal Technical College.*—Has departments of chemistry, physics, biology, botany, and other pharmaceutical subjects, civil, mechanical, and electrical engineering, in which day and evening classes are held. Secretary, Mr. John Nutter.

Bristol.—*University College.*—The fees for the science classes are moderate, and courses are arranged for the examinations of the London University. An evening course is held for the Matriculation. Registrar and Secretary, Mr. James Rafter.

Cardiff.—*University College of South Wales and Monmouthshire.*—Fees for science classes, 13*l*. 13*s*. per session. Registrar, Mr. J. A. Jenkins.

Cork.—*Queen's College.*—Similar to Belfast, except that the eight scholarships, two of which are allocated to each of the first four years, are each of the value of 25*l*., and that in the fifth year there is the Blayney scholarship of the value of about 35*l*. and a Senior Exhibition of the value of 30*l*. Registrar, Mr. Alexander Jack.

Dublin.—*Royal College of Science.*—The course of instruction is similar to that in the London Royal College, but the fees are lower. Government scholarships are also held here.

Dundee.—*University College.*—Botany, chemistry, and physics are taught in day classes, and chemical technology in the evening at the Technical Institute. Secretary, Mr. R. N. Kerr.

Edinburgh.—*Heriot-Watt Institute, Chambers Street.*—Day and evening classes are held in all science subjects. Chemistry day lectures, 3*l*. 3*s*. per session, including laboratory. Secretary, Mr. G. Brand.

The University science course extends to three years, and there are splendid laboratories.

Glasgow.—*University.*—The fees in the faculty of science are 3*l*. 3*s*. or 4*l*. 4*s*. a session, except for laboratory instruction, which is 10*l*. 10*s*. in the chemical section.

Technical College.—Day and evening classes are held. Courses of study during the day, extending over three years, in such subjects as chemistry, chemical engineering, mechanical and electrical engineering, have been arranged. The fees for the first year are from 10*l*. 10*s*. to 15*l*. 15*s*., and for the second and third years from 13*l*. 13*s*. to 18*l*. 18*s*. The fees for the evening classes are from 2*s*. 6*d*. upwards. Secretary, Mr. H. F. Stockdale, 38 Bath Street, Glasgow.

Leeds.—*Yorkshire College, Victoria University.*—The instruction is adapted to the Victoria University degrees and various diplomas. There are special classes for diplomas in public health. Secretary, Mr. W. F. Husband, LL.B.

Liverpool.—*University College.*—Instruction as at Leeds College. Registrar, Chevalier Londini.

Newcastle-upon-Tyne.—*Durham College of Science.*—Fees for curriculum of B.Sc. Durham 56*l*. Day and evening classes are held. Secretary, Mr. F. H. Pruen.

Nottingham.—*University College.*—Day and evening science lectures are given, a special pharmaceutical course is arranged at fees from 5*s*. a course each subject. Secretary, Mr. P. H. Stevenson.

Plymouth.—*Municipal Science, Art, and Technical Schools.*—Day and evening classes are held in most science subjects, the next term commencing on September 13. Secretary, Mr. T. W. Byfield.

Sheffield.—*University College.*—Day and evening lectures in most science subjects are given at low fees, also practical instruction.

Wolverhampton.—*Municipal Science and Technical School.*—Special arrangements in physics, mathematics, and chemistry, are made for students preparing for the Inter. B.Sc.

Prizes and Positions.

THE founder of the Pharmaceutical Socicty of Great Britain—Jacob Bell—is commemorated by two scholarships, the funds for which were subscribed by pharmacists and are held in trust by the Society. The two Bell scholarships are awarded annually as the result of examinations held on the third Tuesday in June in London, Edinburgh, and Manchester. The scholarships are worth 30*l*. each, but in addition free laboratory instruction and admission to the lectures at the Society's School is granted, and the Thomas Hyde Hills fund provides 5*l*. worth of books, the last-named being divided between the two scholars. Candidates are examined in Latin, French or German, English, arithmetic, botany, chemistry, and pharmacy. Particulars are obtainable from the Secretary of the Society.

The E. Northway Butt research scholarships are two scholarships founded by Mr. E. N. Butt to encourage original work in pharmacy. Each scholar receives 100*l*. per annum, payable half-yearly, and although appointed for one year, may be re-elected. The scholars must be members of the Pharmaceutical Society, pharmaceutical chemists, and not over 25. Last year work was done on ash-determinations, extract of gentian, and liquid extract of coca.

The Manchester Pharmaceutical Association scholarship is similar in value to the Bell scholarship, but the instruction can be taken in any provincial school approved by the Council of the Society—Owens College, Manchester, for instance. Candidates must have passed not less than three years with a chemist in Lancashire, Cheshire, or the High Peak parliamentary division of Derbyshire.

The Research Laboratory of the Pharmaceutical Socicty was instituted in 1838 for the purpose of furthering pharmaceutical research. Workers do not receive payment, and must satisfy the committee of management of their competency to undertake original investigation. Work is done in the laboratory at the suggestion of the Pharmacopœia Committee of the General Medical Council, and in this way pharmacists take a part in pharmacopœial revision—without obtaining any credit.

The Salters' Company offer, through the Pharmaceutical Society of Great Britain, a "Fellowship" worth 100*l*. a year, tenable in the Research Laboratory.

The Redwood scholarship and the Burroughs scholarship, valued at about 25*l*. a year each, are offered annually to pharmaceutical chemists who are desirous of obtaining advanced instruction in chemistry and chemical pharmacology with a view to conducting original investigations in these subjects. The scholars work in the Research Laboratory, but the scholarships do not appear to attract candidates.

Pharmaceutical chemists are also entitled, under certain conditions, to compete for the Pereira medal, and student-associates may compete for the herbarium prize.

The Pharmaceutical Society of Ireland gives a gold medal and a silver medal to the best two candidates of the year at

the Licence examination, a minimum of marks required being fixed.

The British Pharmaceutical Conference has a research fund available for grants in aid of research which is at present going a-begging. Applications should be addressed to the Secretaries, the British Pharmaceutical Conference, 17 Bloomsbury Square, W.C.

Army Compounders.

These appointments are held by non-commissioned officers in the Royal Army Medical Corps, who pass examinations in pharmacy, materia medica, posology, and similar subjects conducted by the medical officers. It is necessary to enlist in the corps, and work up to the position through the usual stages, which include drill, nursing, field-work, and the like. During the Boer war a number of temporary appointments of dispensers was made for a year or the period of the war at the pay of 3*s.* 6*d.* a day, free rations, kit, and passage to and from South Africa. Some dispensers were allowed to return home after about twenty months' service, others being engaged to fill their places. The *C. & D.* of the last two years contains several accounts of the experiences of these army compounders, which show that the authorities are far from appreciating the value of competent dispensers.

Dispensers in Naval Hospitals.

There are sixteen dispenserships in naval hospitals at home and abroad—four and a supernumerary at Haslar, three at Plymouth, two at Malta, and one each at Haulbowline, Chatham, Cape of Good Hope, Jamaica, Bermuda, and Hong-Kong. Entry into the Service is by examination, conducted by the Civil Service Commissioners, but the candidates are first selected by the Medical Department of the Navy, Northumberland Avenue, W.C., to the Director-General of which department applications respecting vacancies and nominations should be addressed. Candidates must be chemists and druggists or pharmaceutical chemists, and be not less than 21 or more than 28 years old. The pay is 110*l.* a year to begin with, and rises by 5*l.* every two years to 130*l.*, and then by 10*l.* every two years to 230*l.* Additional allowances of from 20*l.* to 40*l.* a year are made to dispensers in charge of stores. Free quarters are provided, and allowances made to those serving on foreign stations to meet the increased cost of living. Dispensers get a month's holiday yearly, and those on foreign stations may reserve their holiday from year to year so as to obtain a longer period of absence, but *locum tenentes* have to be found "without putting the public to any expense in providing substitutes." Pensions are granted on retiring.

Vacancies are advertised in The Chemist and Druggist when they occur. The examination (fee 10*s.*) is held on the Pharmaceutical Society's premises in (1) pharmaceutical chemistry; (2) materia medica, including the British Pharmacopœia and its Appendix, poisons, and their antidotes, dosage of remedies, and preparation of antiseptic solutions; (3) recognition of chemicals and drugs employed in medicine; and (4) practical pharmacy, prescription-reading, and detection of errors in doses. 3 and 4 are *viva-voce* subjects.

The following is the official syllabus:—

1. *Pharmaceutical Chemistry.*—The range of the examination extends to the following subjects: The sources of drugs; the adulteration of drugs; the active principles of drugs; the principles of dosage; the principles of dispensing; flavouring-agents; incompatibility and antagonism; idiosyncrasy, toleration and habit, accumulation; weights and measures, including the metric system. 2. *Materia Medica.*—The range of the examination is indicated in the following schedule:—(*a*) Inorganic Substances: The physical and chemical characters, preparations, actions, and doses of chlorine, chlorinated lime; bromine and the bromides; iodine and the iodides; sulphur, sulphurous acid, and the sulphides; phosphorus, the phosphates, and the hypophosphites; the mineral and vegetable acids; potassium salts, including the bicarbonate, chlorate, and permanganate; sodium salts, including the bicarbonate and sulphate; ammonium salts, including the carbonate, chloride, and acetate; lime, carbonate of lime; magnesia, sulphate of magnesium; alum; zinc, oxide and sulphate; sulphate of copper; nitrate of silver; mercury and its salts; lead, acetate and subacetate; antimony; arsenic; hydrocyanic acid; bismuth; iron. (*b*) Synthetical Compounds: The physical and chemical characters, mode of administration or application, actions and doses of alcohol, including percentage of in wines, spirits, &c.; anæsthetics, including chloroform, ether, and "A.C.E." mixture; antiseptics, including carbolic acid, creosote, salicylic acid, &c.; the salicylates; iodoform and its substitutes; chloral and butyl-chloral-hydrate; sulphonal and its congeners; nitro-glycerin and nitrite of amyl. (*c*) Drugs of Vegetable Origin: The source, physical characters, preparations, actions, doses, and uses of aconite; opium and its alkaloids, apomorphine; coca and cocaine; jaborandi and pilocarpine; physostigma and eserine; the tonic bitters, such as gentian, quassia, and calumba; cinchona-bark and its alkaloids; nux vomica and strychnine; the belladonna group, including the alkaloids and derived alkaloids; digitalis and strophanthus; Indian hemp; ipecacuanha and senega, squill; purgatives, such as castor oil, croton oil, aloes and aloin, elaterium and elaterin, jalap, rhubarb, and senna; tannic acid, gallic acid, kino, catechu, and hamamelis; camphor, turpentine, menthol; copaiba and cubebs; colchicum; male fern, santonin, and other anthelmintics; ergot. (*d*) Drugs of Animal Origin: Cod-liver oil; cantharides, and the preparation of blisters and blistering-fluids. 3. *Poisons.*—The symptoms produced by the commoner poisons; the modes of evacuating the contents of the stomach; emetics and their mode of administration; antidotes and their mode of preparation. 4. *Recognition of Chemicals and Drugs.*—This will be confined to those commonly employed in medicine. 5. *Practical Pharmacy, &c.*—In the practical examination the candidate may have to dispense mixtures, pills, suppositories, &c., and to spread plasters. He must be able to dispense percentage solutions. Quickness, accuracy, and neatness will be taken into consideration.

These appointments, which are limited, are in naval hospitals; in the Navy itself the dispensing is done by the medical officer or by a bluejacket trained by him.

Poor-law Dispensers.

These are appointments made by Guardians of the poor to dispensaries in metropolitan Unions and other Unions where special orders of the Local Government Board are in force. A candidate must be either (1) a Licentiate of the Society of Apothecaries, London; (2) an apothecary's assistant (under the Apothecaries Act); (3) a compounder of medicines in accordance with the Regulations for the Army Medical Staff Corps; (4) registered under the Pharmacy Act, 1868; or (5) an Irish pharmaceutical chemist.

In 1900 a concession was granted by which Guardians were empowered to increase a dispenser's salary by 10*l.* every fourth year until a maximum of 180*l.* a year is reached. Poor-law dispensers come under the provisions of the Poor-law Officers' Superannuation Act, 1896, and receive pensions on retirement through age or ill-health at rates laid down in the Act.

Prison Dispenserships

are open to chemists and druggists between 24 and 30 years of age. It is necessary to join as a warder and wear uniform. Residence is provided, and the salary is from 105*l.* to 140*l.* a year.

Analytical Appointments.

Woolwich Laboratory.—For the position of junior assistant in the department of the War Office Chemist at Woolwich an examination in chemistry and physics is held. Chemistry comprises inorganic and organic chemistry, including the more important methods of analysis. The examination is written and practical. In physics the more elementary portions of the subject, including the general properties of matter, heat, light, sound, electricity, and magnetism, are included.

Government Laboratories, Clement's Inn Passage, Strand, W.C. (formerly Somerset House).—Applicants for appointments in these laboratories must be assistants of Inland Revenue or junior officers of the Customs Department; but the Principal Chemist now has considerable discretion as to the appointments, and well-qualified men who are not Revenue officers may be selected. The salary of second-class analysts is 160*l.*, increasing by 15*l.* annually. Particulars of the examination (which others than those selected by the Principal must pass) can be had from the Secretary of the Civil Service Commission, Cannon Row, S.W. After passing the examination, a two-years' course in theoretical and practical chemistry is provided, with certain allowances, at the Royal College of Science, South Kensington. The pay of Government analysts varies from 160*l.* to 800*l.*, with pension on retirement.

OPTICAL EXAMINATIONS.

Examinations in opties are held as under, and may be resorted to by ehemists who fit and sell speetaeles. These diplomas, however, eonfer no legal status on the holders.

The Spectacle-makers' Company, London, hold examinations once or twiee a year. The next is to be held in February, 1903. There are two grades—the Full eourse and the Modified. The Modified examination ean only be taken by those who have been trading for at least seven years. The subjeets of the examination are:—

Light.—Elementary laws of light; simple laws of refraction; the index of refraction; refraction as applied to lenses and prisms; conjugate foci; formation of images; simple laws of reflexion as applied to curved and plane mirrors.

Optics Relating to Vision.—General anatomy of the human eye The course of light passing through the media of the eye alone and modified by spherical and cyliudrical lenses and prisms. Hypermetropia; myopia; astigmatism; presbyopia. Instruments commonly used for determining the refraction of the eye: Trial lenses—test types—astigmatic chart—the optometer. The principle of the ophthalmoscope. The principle of, and various forms of spectacles.

Practical Work in Visual Optics.—Testing a plane surface; measurement of focal length of spherical, cylindrical, and compound lenses; use of the spherometer or lens meter; measurement of conjugate foci; determination of the axis of a cylinder, and the angle of deviation of a prism; analysis and neutralisation of spherical, cylindrical, and compound lenses, and lenses combined with prisms; transposing; centring and adjustment of spectacle lenses and frames; face-measurement for spectacles. Knowledge of the materials and of the workmanship employed in the manufacture of lenses and frames; use of pebble-tester. Reading of oculists' prescriptions; giving out orders for lenses and frames.

Candidates who take the Full examination are examined, as well, in elementary mathematics, heat, practieal work with optieal and mathematieal instruments, and in either the photographie eamera or the mieroseope. Experiences of candidates and the questions set at the previous examinations have been printed in the *C. & D.*, the last on May 25, 1901, page 832.

The Full examination can be taken in two parts. The examination-fee is 3*l.* 3*s.* The Company issue a booklet to medieal men eontaining a list of those optieians who hold their diplomas. Further particulars ean be had from Col. T. Davies Sewell, 11 Temple House, Temple Avenue, E.C.

The British Optical Association, 17 Shaftesbury Avenue, W., have also an examination-seheme. In the B.O.A. seheme there are three grades of examination—the optie, dioptrie, and fellowship—for whieh the fees are 1½, three, and five guineas. The optie grade has to be passed by the eandidate before he ean pass to the higher grades. The examinations are held twiee yearly in London. Candidates must be of British nationality. A new syllabus is in eourse of preparation. The Seeretary is Mr. J. H. Suteliffe.

Optical Instruction.

The Northampton Institute, Clerkenwell, E.C.—At this institute a course of optieal lectures and praetieal instruetion, subsidised by London optieians and by publie bodies, is held. The eourse begins in Oetober, and lasts till June of the following year. Partieulars ean be had from Dr. R. Mullineux Walmsley, the Prineipal.

Mr. Lionel Laurance, 326 Birkbeek Bank Chambers, Holborn, W.C., eonduets correspondenee and personal elasses in visual opties in preparation for the examinations of the Worshipful Company of Speetacle-makers. The fee for the eourse is 8*l.* 8*s.* Also elasses in sight-testing and advaneed praetieal work.

The Anglo-American Optical Company, 47 Hatton Garden, E.C., conduct a school of optics.

QUESTIONS FOR STUDENTS.

The following is a selection from the questions set by Dr. J. Muter, F.R.S.E., F.I.C., for the free-tuition scholarship of the South London Sehool of Pharmaey in August, 1902:—

Latin.—Expand into unabbreviated Latin and English: ℞. Hyd. chlor. gr. 15, aq. ad ℥iss.; ft. haust.; h.s.s.s.s.o.s. *Also*, ℞. Bismuth. trisnit. ℥iss., bism. liquor. ℥ss., glycerin. ℥ss., liq. potass. ℥ij., tr. chlor. et morph. ℥j., acid. hydrocy. dil. ♏ 50, ext. bellad. gr. vj., inf. calumb. ad ℥x.; ft. mist.; cuj. cap. ℥ss. ter die.

Materia Medica.—Seven questions, including the following:—
How do you judge the quality of a piece of rhubarb?
What is elaterium, and how is it obtained?

Pharmacy.—Ten questions, including:—
How would you dispense the following?—
(*a*) ℞. Hyd. biniod. gr. $\frac{1}{15}$; ft. pil.; mitte 24.
(*b*) ℞. Pot. chlor. gr. 30, ac. hydroch. ♏ 20, inf. rosæ acid. ad ℥vj.; ft. mist.; pars sexta ter die sumenda.
(*c*) ℞. Phosphori gr. ½, aquæ ad ℥viij.; coch. mag. bis die sumend.

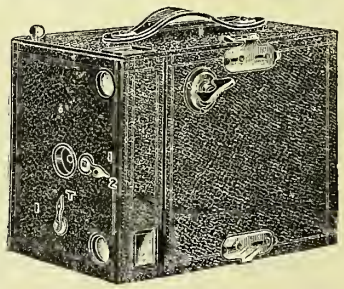
Chemistry.—Nine questions, including the following:—
What volume of CO_2 is obtained, at 10° C. and 760 mm. pressure, by dissolving 10 grams marble ($CaCO_3$) in HCl?
How would you prepare silicic and hydrofluosilicic acid? Sketch the apparatus.

Botany.—Eight questions, including the following:—
What is a vacuole, and how is it formed?
Describe what happens during the germination of a seed of the bean.

Photographic Notes.

The Newest Hand-cameras

are the No. 1 and No. 2 Maxim, whieh Messrs. W. Buteher & Sons, St. Bride Street, E.C., have this week placed on the markct. The cameras sell at 5*s.* and 10*s.*, and the style may be judged from the illustration given of the larger size. The eameras are intended to take daylight-loading roll-films, pictures 2¼ by 2¼ and 3¼ by 2¼ being taken respectively. The No. 2 Maxim has a handle, two brilliant finders, and two stops, but eaeh eamera has an arrangement by whieh either time or instantaneous exposures may be given. The eameras are sent out boxed, and with instruetion-books. They will not be too late for the autumn photographie season, and will be speeially useful as Christmas presents.



Instruction-book.

Sparrow's "Prineiples of Simple Photography," 1*s.* (Hazell, Watson & Viney, Limited), is a eapital instruetion-book for beginners, and is unique in that the penultimate ehapter is on shipboard photography. My own experienee of the sea is very limited, but I ean quite understand that photography is a most fitting pastime for voyagers who have leisure hours when aboard. Photographie ehemists in eoast towns should remember this little book when asked by a yaehtsman or sailor for a suitable guide to photography.

The "Tyma" Trough,

hitherto made only for roll-film, is now being adapted for plates. Six plates are put in a rack and then in the "Tyma" trough, in whieh they are developed, fixed, and washed before being removed in the rack for drying-purposes. The trough to take six quarter-plates sells at 5*s.*; other sizes are made, up to one taking 10-by-8 plates.

Another Film.

Although there are now several good roll-films on the market, I have reeeivcd notiee that Messrs. Wellington & Ward are bringing out a eelluloid film. If the new film is as good as the paper-backed film, it should soon make a name for itself.

Dark-rooms.

Braemar.—Mr. A. D. Clarke.

Chesham.—E. G. Elliman, 67 The Broadway.

Iodine in the Blood.—Professor Armand Gautier recently announeed the discovery by Dr. Gley of the presence of iodine in the blood to the extent of 0·02 to 0·10 milligramme per litre. This apparently has some eonnection with the faet that the thyroid gland contains iodine in eombination, and the old practice of giving iodine in goître has foundation on scientifie fact.

Legal Reports.

Trade Law.

Wrappers in Checkered and Plaid Patterns.—J. & G. Cox (Limited), manufacturers of gelatin, applied recently in New Zealand to register in respect of gelatin a trade-mark consisting of a checkered pattern. The application has been pending for some months, and was opposed by Robert Harper & Co. Prop. (Limited), on the ground that part of the trade-mark was so similar to the trade-mark registered by them for table-jellies, consisting of a plaid design, as to be likely to mislead unwary purchasers. The difference between a check and a plaid was argued at length. Webster's Dictionary defines plaid as a checkered cloth or pattern, and it was argued that the description of one mark consequently applied equally to the other. At the end of June the Registrar gave his decision in favour of the opponents, Robert Harper & Co. Prop. (Limited), with costs against the applicants.

High Court Case.

Webb Lamp Company (Limited) *v.* Health Filter Company (Limited).

On Wednesday, September 3, this case came up before Mr. Justice Swinfen Eady, sitting as Vacation Judge.

Counsel who appeared for the plaintiffs said it was an application for the committal of the defendants in a patent action, for contempt, the contempt consisting in the issue of a certain circular, which counsel said represented that in an action tried before Mr. Justice Byrne decision had been given in defendants' favour, which was not the case, the action having been set down for trial, and it would come on immediately after the Long Vacation. There had been certain proceedings in connection with an application for an interim injunction, and afterwards the defendants' circular appeared, alluding to the "Anti-Splash Company," of which the plaintiffs now complained.

Counsel for the defendants said their circular was merely a reply to one sent out by the plaintiffs, and which he described as containing a "gross contempt of Court." (Laughter.)

His Lordship, after having had both circulars before him, said it might well be that no more circulars should be issued on either side, pending the trial of the action. He was of opinion that the defendants ought to be restrained from the issue of the circular of which plaintiffs now complained, because it certainly contained statements which were not true. The only doubt he had was whether he ought not to commit the defendants, but he would certainly make an order restraining them from issuing any further circulars such as these complained of, and that they should pay the costs of the motion.

Pharmacy Act, 1868.

Alleged Illegal Sale of Oxalic Acid.

At the Aberdeen Sheriff Court on August 29, before Hon. Sheriff-Substitute Douglass Duncan, William Jaffray, assistant in the London and Provincial Drug-store, George Street, Aberdeen, was charged, under Section 15 of the Act, at the instance of the Registrar of the Pharmaceutical Society of Great Britain, with having, on July 25, sold oxalic acid, he not being a duly registered pharmaceutical chemist or a chemist and druggist. Accused pleaded not guilty, and his trial was fixed to take place on Monday, September 8.

Customs Act.

The Saccharin Case.

The hearing of the charges against Edwin Brooke (62) and Edwin Henry Brooke (24), for being concerned in carrying, having in their possession, and dealing in saccharin (see *C. & D.*, August 30, page 384), was concluded at Southwark Police Court on September 3. Mr. Chapman said he could not accede to the request of Mr. Grain to adjourn the case until after the trial against their employer, Mr. Kramer, at the High Court.

Mr. Grain said he did not propose to put the prisoners in the witness-box or to call any witnesses. It was necessary, before the prosecution could succeed, to prove that the prisoners were knowingly dealing with the stuff and with intent to defraud his Majesty's Customs. With regard first to the knowledge, the prisoners were ordinary working men, and there was no evidence that they were receiving any enhanced or improper wages, or that they were in any way recompensed by presents for unlawful acts. The elder prisoner was receiving 32*s.* a week and the younger 27*s.* It was true that the former had 27*l.* in his possession when he was arrested; but he declared that these were his savings, and the police had returned them to him. They were merely labouring men under the control of a superior, Mr. Kramer, now in prison owing to being unable to find the heavy bail of 5,000*l.*, for being, as was alleged, concerned in the manufacture and importation of a quantity of this stuff and the evasion of duty. There was no evasion on the part of the prisoners with regard to the carrying of this saccharin from the factory to the head office. It was done in broad daylight and openly; and when the police visited the factory there was no concealment. Further, there was not a particle of evidence of any intention to defraud on their part. In effect this was a charge of conspiracy between them and Mr. Kramer, but it would be unfair if the Magistrate allowed his mind to be influenced by the allegations against Mr. Kramer. Any proof of intent to defraud was absolutely absent here, either direct or from which the inference could be drawn. If the Magistrate's decision was adverse to the prisoners, there was no appeal, unless there was one under section 237 of the Customs House Act. His interpretation of that section was that, if the Magistrate, instead of imposing the fine, sent the prisoners to gaol, there should be an appeal.

Mr. Leycester: I do not think they could be sent to prison without the option of a fine.

Mr. Chapman: Nor do I.

Mr. Grain: Then, as far as I can see, your decision is absolutely final.

Mr. Leycester pointed out that under section 186 the Magistrate had power to fine the defendants treble value or 100*l.* The treble value in the elder prisoner's case amounted to 750*l.*, and in the case of the younger to 825*l.* Then, under section 232, if the penalty was not paid, he was compelled to send them to prison.

Mr. Chapman said that although the prisoners were employed by another man for his benefit, they were responsible for their acts as if they were independent persons. He could not come to any other conclusion in a case of this kind, where the onus of the proof was upon the prisoners, but that they were well aware in dealing with this material what its character was, and that it ought to have paid duty. They carried on this business for rather more than a year, and he considered from the expert's evidence that they must have known what it was. At all events, the onus of proof was upon them, and no evidence had been called on their behalf to contradict the inference he had drawn. Instead of fining them treble value he would fine them double. The elder prisoner was fined 50*l.* in respect to the saccharin he was carrying when arrested, and 450*l.* with regard to the charge of dealing with the 90 lbs. found on the premises, or in default of payment six months' imprisonment. The younger prisoner was fined 100*l.* with regard to the saccharin he was carrying, and 450*l.* with respect to the other charge, or three months' imprisonment.

Medicine-stamp Acts.

Unlicensed Vendors.

At the Bristol Police Court on August 27, Jas. White, a shopkeeper, of Pipe Lane, St. Augustine's, was summoned for selling medicines—namely, Beecham's pills—without having a licence. Mr. H. B. Hawkins prosecuted on behalf of the Inland Revenue. Robert Hayman stated that he went to Mrs. White's shop in Pipe Street, and asked for threepennyworth of Beecham's pills, which were served to him by an elderly lady, rather deaf. She took them out of a wooden box. Mr. O'Donoghue, at whose instructions Hayman went to the shop, deposed that no licence was held by the

defendant to sell medicines. The defendant stated that his wife had acted in ignorance. He was fined 10*s.* and costs.

At the same time and place Emily White, shopkeeper, of Frogmore Street, was summoned for selling Daisy Powders and Beecham's pills without a licence. The witness Hayman stated that he purchased twopennyworth of Daisy powders and twopennyworth of Beecham's pills at the defendant's shop. A fine of 10*s.* and costs was imposed.

Also at the same Court, Alfred Beasley, shopkeeper, of 89 Goodhind Street, Bristol, was summoned for selling Daisy powders without a licence. Mr. O'Donoghue stated that he purchased two packets of the powders at the defendant's shop. Defendant pleaded ignorance of the law. Mr. Hawkins said he had no doubt that some shopkeepers had been misled by persons who supplied them with these medicines. A fine of 5*s.* and costs was imposed.

Locomotives on Highways Act, 1900.

The Storage of Petroleum.

On August 28 the Locomobile Company of Great Britain (Limited), of 39 Sussex Place, South Kensington, were fined 5*l.* at Westminster Police Court for storing 160 gals. of petroleum when only 60 gals. can be kept at one place. Furthermore it was stated by the London County Council's solicitor, who prosecuted, that the flash-point of the oil was found to be only 60°, while 73° is the minimum fixed by the Petroleum Act.

Merchandise-marks Act.

Aërated-water Bottles.

At the Enniscorthy (co. Wexford) Petty Sessions last week, before Sir W. J. Paul, Bart., R.M. (in the chair), Messrs. John Cullen, A. Y. Eden, M. Haughton, and Dr. Cookman, J.P.'s., Nicholas Walsh and Cornelius Irwin, trading as Walsh & Co., mineral-water manufacturers, Enniscorthy, appeared in answer to summonses at the suit of Messrs. Cantrell & Cochrane (Limited), Bewley & Draper (Limited), Thwaites & Co. (Limited), and Taylor & Son, mineral-water manufacturers, Dublin, for filling embossed trade-mark bottles of the complainants with aërated waters of the defendants' own manufacture. After a lengthened hearing, the Bench imposed a fine of 2*l.* with 1*l.*, costs, in each case. An appeal has been lodged, which will be heard in October.

[In connection with the working of this Act, a number of meetings of vintners, &c., have recently been held in the co. Monaghan, whereat resolutions have been passed condemning the embossing of bottles with traders' names, and pledging the shopkeepers not to deal in future with the makers who insist on this condition.[

Sale of Food and Drugs Acts.

Mercurial Ointment.

At the Liverpool Police Court on August 27, the Liverpool Drug Company (Limited), of London Road, Liverpool, were summoned for selling mercurial ointment which was deficient in mercury to the extent of 42·3 per cent. For the defence it was stated that the box containing the ointment was plainly labelled "Diluted," and that the purchaser was aware of that fact. The case was dismissed.

Sweet Spirit of Nitre.

At the Barnard Castle Police Court on August 28, Henry Blackett, grocer, of Woodland, was charged with selling sweet spirit of nitre deficient in ethyl nitrite to the extent of 25 per cent. The inspector said that when he made the purchase on July 3 he asked for 6 oz. of sweet spirit of nitre B.P., and paid 1*s.* 9*d.* He first of all put the sweet nitre into a 12-oz. bottle and the sub-divisions were then made. He knew that the nitre was very volatile. He also purchased other articles from the defendant and they were all returned as genuine. Mr. A. K. Stock, the county analyst, said the British Pharmacopœia fixed a definite and the only legally authorised standard at which this drug could be sold, after allowing every margin for evaporation and volatility in trade handling. The sample in question was found deficient as stated. Cross-examined by Mr. Dawson (for the defence), Mr. Colwell said there was no foreign substance introduced, but he denied that insensible evaporation would go on to the extent indicated. Defendant said he purchased the drug from Messrs. Wood & Co., of Bishop Auckland and he changed it from a white into a blue bottle, exercising every care in handling. Albert Wood, a member of the firm of wholesale dealers in Bishop Auckland, who supplied Blackett with the sweet nitre, said the drug was guaranteed B.P. by Messrs. Goodall, Backhouse & Co., and his firm in turn guaranteed it to their customers. Mr. Dawson argued that there was no demand made which had not been complied with. The defendant had not interfered with the sweet nitre in any way and had sold it as it had been guaranteed to him. In the case of Fowle *v.* Fowle it had been held that a chemist sold wax of certain strength for the purpose of conveying the medicinal properties of drugs, while a grocer selling beeswax adulterated to the extent of 50 per cent. with paraffin was guilty of no offence. The defendant was not a chemist, but a grocer, and he had simply vended an article known to the trade generally as a grocer and not an article of the standard procurable from a chemist. The Bench fined Blackett 10*s.*, and 12*s.* 6*d.* costs.

Deed of Arrangement.

Lean, Wilfrid, 24 Port Street, Bengeworth, Evesham, chemist and aërated-water manufacturer. Trustee, Edward T. Collins, 28 Baldwin Street, Bristol, chartered accountant. Dated, August 25; filed, September 1. Liabilities unsecured, 2,833*l.* 13*s.* 6*d.*; estimated net assets, 2,549*l.* 15*s.* 2*d.* Amongst the creditors are:—

	£	*s.*	*d.*
Anglo-American Optical Company, London	16	0	0
Barrett & Elers (Limited), London	14	0	0
Bratby & Hinchliffe (Limited), Manchester	176	0	0
Cadbury, G., Birmingham	150	0	0
Hearon, Squire & Francis, London	10	0	0
Houghton, G., & Son, London	17	0	0
Kops' Brewery, London	50	0	0
May, Roberts & Co., London	46	0	0
Newbery, F., & Sons, London	14	0	0
Riley Manufacturing Company (Limited), London	12	0	0
Stevenson & Howell (Limited), London	23	0	0

Gazette.

Partnership Dissolved.

Smith, A. T., and **Hutchinson, A. M.,** under the style of Smith & Hutchinson, Liverpool, chemical-brokers.

The Bankruptcy Acts, 1883 and 1890.

Adjudication.

Robinson, George Carr, Kingston-upon-Hull, chemist and analyst, at present chemical-works manager.

Notices.

The appointment of Mr. John Graham Kerr, M.A., to be Professor of Natural History in the University of Glasgow was formally announced in the *Gazette* of August 29.

The Carnegie Trust.—The King has been pleased, by warrant under his Majesty's royal sign manual, bearing date August 21, to direct letters patent to be passed under the seal appointed by the Treaty of Union to be kept and made use of in place of the Great Seal of Scotland, granting a charter for the incorporation of the Carnegie Trust for the Universities of Scotland.

Parcel-post to the United States.—The *Gazette* of August 29 contained a notice that on September 1 a parcel-post will be established with the United States of America. The notice states that the charges for conveyance must be prepaid by means of stamps, and it will be open to the sender to prepay in the same way the charges for Customs clearance and storage fee, so that the parcel may be delivered free of cost to the recipient. The sender may, without extra charge, direct that a parcel be sent through the New York Custom House in bond for Customs ex-

amination at any one of the United States ports of entry, or inland Custom houses, of which a list is given, thereby avoiding the delay at New York to which ordinary parcels will be liable pending the payment by the addressees of duty and other charges. The addressees of parcels so treated, however, will have to make arrangements for their delivery after they have been cleared. The regulations of the foreign and colonial parcel-post will apply generally to this service, but attention is called to certain points of difference. Thus, two copies of the Customs declaration are required, and, if the value of the goods in a parcel exceeds $100, or 22*l.* 10*s.*, the declaration must be made before a United States Consul. In addition to the articles excluded from transmission by the foreign and colonial parcel-post, it is pointed out that certain articles are prohibited from importation into the United States—namely, eatables, ox-hides, prison-made wares, wines containing more than 24 per cent. of alcohol, cigars and cigarettes in quantity numbering less than 3,000, casks of wine and spirits of less than 14 gals., and opium containing less than 9 per cent. of morphine. A special list of insurance-rates is added.

New Companies & Company News.

PLAISSETTY FOREIGN RIGHTS COMPANY (LIMITED).—Capital 12,000*l.*, in 1*l.* shares. Objects: To acquire from J. de L. Cohen an option granted to him by La Société Anonyme Générale d'Incandescence (Système Plaissetty) for the acquisition of the patents and rights of and in an invention by A. M. Plaissetty for improvements in incandescent filaments and mantles, and for the exploitation of the same in Austria, Hungary, Russia, Switzerland, Finland, the Duchy of Luxemburg, Greece, Turkey, Roumania, the Balkan Peninsula, Italy, Asiatic Turkey, Egypt, China, Japan, Central America and South America, and to carry on the business of manufacturers of and dealers in mantles, filaments, tissues, threads, silks, burners, and other materials, apparatus, chemicals, and things for incandescent-lighting. No initial public issue. The subscribers are to appoint the first directors. Qualification, 100*l.* Remuneration, as fixed by the company.

SCOTTISH CYANIDE COMPANY (LIMITED).—An extraordinary general meeting was held at Edinburgh on August 29, Mr. William Sanderson presiding. The Chairman explained that since the annual meeting a few months ago, the prospects of the company had exceeded their expectations, and affairs were in a satisfactory state. It was unanimously agreed to divide the capital, amounting to 200,000*l.*, into 5,000 deferred shares, 10,000 ordinary shares, and 5,000 preference shares, all of 10*l.* each.

THE BOOTS COMPANIES' DIVIDENDS.—The usual quarterly dividends of the Boots Pure Drug Company (Limited) (preference shares), Boots Cash Chemists (Eastern) (Limited) (preference shares and ordinary shares, 12 per cent. per annum), Boots Cash Chemists (Western) (Limited) (6-per-cent. preference shares), Boots Cash Chemists (Lancashire) (Limited) (6-per-cent. preference shares), Boots Cash Chemists (Southern) (Limited) (6-per-cent. preference shares), will be posted on September 30 to the proprietors registered in the companies' books on September 1.

PRICE'S PATENT CANDLE COMPANY (LIMITED).—The report for the six months ended June 30 states that the balance of profit in hand shown by the accounts laid before the general meeting in March, was 66,987*l.*, from which has been deducted dividend 1*l.* per share, paid March 8, 37,500*l.*, reserve fund 10,000*l.*, on account of depreciation on fixed properties 12,500*l.*, leaving a balance of 6,987*l.* The profit for the six months to June 30 was 36,285*l.*, from which must be deducted income-tax 2,382*l.*, leaving a balance of 33,903*l.*, which, with the balance of 6,987*l.* makes a total of 40,890*l.* A dividend is to be declared of 15*s.* per share, 28,125*l.*, leaving in hand 12,765*l.* to be carried forward.

LIVERPOOL COMMERCIAL-DEVELOPMENT CORPORATION.—A seizure-sale, at the instance of the Inland Revenue authorities, took place at the offices of this company in Liverpool last week. The sale was for the purpose of recovering income-tax, and the fine Spanish mahogany chairs, tables, and couches, together with pictures and pottery of the most *recherché* description, with which the offices were furnished, passed under the hammer and were keenly bid for. The company was registered in 1897, its original object being to acquire the patents of an improved electrolyser for the production of alkali and bleaching-powder. The nominal capital was 200,000*l.*, of which over 100,000*l.* was issued in ordinary and deferred 1*l.* shares. In 1898-9 the corporation paid 20 per cent. dividend on the ordinary, and 32½ per cent. on the deferred, shares. In January last the ordinary dividend had fallen to 5 per cent., and shares have now dropped to the nominal value of 1*s.* each.

Business Changes.

MESSRS. BOOTS (LIMITED) have opened a shop at Romford Road, Manor Park, E.

MESSRS. G. HARDY & CO., manufacturing chemists, have removed from 6 Gray's Inn Road to 34 Eagle Street, W.C.

MR. J. S. TUTE, chemist and druggist, has sold his business at Grosvenor Road, Tunbridge Wells, to Mr. A. G. Harden.

MR. E. H. STREATFIELD, chemist and druggist, has opened a business at 29 High Street, Woolwich, close to the free ferry.

MR. T. TURNER, chemist and druggist, late of High Road, Chiswick, W., has opened The District Pharmacy at East Sheen, S.W.

MESSRS. STREET & CO., chemists, St. Leonards Road, Bexhill-on-Sea, have closed their branch business at Station Road, Bexhill.

MR. SAMUEL SCOTT, chemist and druggist, has recently purchased the business of Mr. George Hampton, Aylestone Road, Leicester.

MR. J. PHILLIPS, chemist and druggist, has taken over the business formerly carried on by Mr. W. F. Ray at 21 Nelson Street, Greenwich, S.E.

MR. J. H. SHUTTLEWORTH has taken over the branch business at 38 Canwick Road, Lincoln, formerly belonging to Mr. J. T. Birkbeck, chemist and druggist.

MESSRS. C. J. HEWLETT & SON, wholesale druggists, have annexed the newly erected and extensive premises Nos. 35 to 39 Charlotte Street, Great Eastern Street, E.C.

MR. T. W. JONES, of 71 Bohemia Road, St. Leonard's-on-Sea, is re-fitting his pharmacy, and putting in a modern double-windowed front in place of the single one.

MR. W. LORD, chemist and druggist, 148 Hyde Road, Denton, has opened a branch shop near Hyde Road Station, Gorton, not far from the famous Belle Vue Gardens.

THE business at Broadway, Leyton, which Mr. Richard Rice Lewis, pharmaceutical chemist, acquired some time ago, was previously carried on by Mr. A. Orme, and before that by Mr. Bulgin.

MR. ANTHONY H. FITZGERALD, chemist and druggist, who for many years has been with Messrs. Johnson & Sons, chemical-manufacturers, Finsbury, is opening a pharmacy at the King's Parade, Colney Hatch Lane, N.

MESSRS. JAMES L. HATRICK & CO. (LIMITED), owing to increased business, are removing from 82 Turnmill Street, E.C., to new premises at 70 St. John Street, Clerkenwell Road, E.C., which they will occupy about September 15.

MR. J. STONE, for the last twenty years with Messrs Walter Nutter & Co., East India merchants, has now set up in business on his own account as an East India and China merchant, under the style of J. Stone & Co., at Dominion House, 110 Fenchurch Street, E.C.

CLACTON-ON-SEA has of late years greatly added to the number of its pharmacies. About eight years ago Mr. W. Mann was the only chemist, with an old-established business near the Pier. Then Mr. H. A. Worts, chemist and druggist, fitted up a spacious pharmacy opposite the Town Hall. These gentlemen had it all to themselves until about three years ago, when Mr. W. Fewtrell opened a well-ordered drug-store in the old village. Mr. W. Maskew, pharmaceutical chemist, then started in West Avenue, and Mr. T. H. Exon in Pier Avenue. Now Mr. Maskew has taken Nos. 26 and 27 Electric Parade, and is about to fit up a large pharmacy (35 feet by 30 feet) there. A well-equipped sight-

testing room will be a special feature in the new pharmacy, Mr. Maskew holding the F.S.C. qualification. The West Avenue shop will be carried on as a branch, and Clacton will then have one pharmacy to every 1,000 (nearly) of its population.

Trade Notes.

The "Dylissia" preparations and the business are for sale as a going concern. An announcement regarding the matter appears in our Supplement this week.

For Ten Shillings a Month the M. P. Gould Company, drug-store and medical advertisers, Bennett Building, New York, U.S.A., offer our readers a scheme of advertising, which practically amounts to writing all newspaper advertisements, circulars, cards, and many other things that are detailed in the company's advertisement in this issue. That advertisement is in itself a good introduction, and Mr. Gould is a past-master in his art. To busy men, at home or in the colonies, who want to advertise well, and cannot through lack of time, this is a good opportunity.

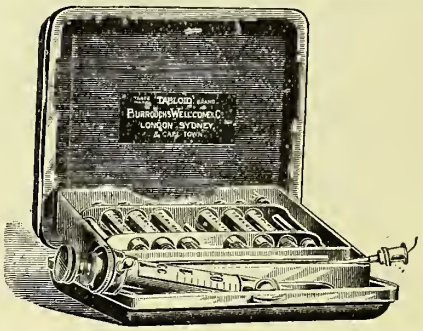
Photogravure Calendars.—Messrs. Charles Letts & Co., 3 Royal Exchange, E.C., bring to our notice the Connoisseur photogravure series of advertising-calendars they have prepared for next year. The calendars are for hanging on the wall, and each has on it a photogravure of some well-known picture. The photogravures are excellently produced, and ensure the calendar a good reception. The printed matter includes in some cases first-aid information, antidotes for poisons, and astrological predictions, as well as the calendar. Samples are sent for selection on certain conditions.

For the Winter Campaign.—A series of excellently lithographed labels and cartons in various colours for packed extract of malt and extract of malt and cod-liver oil reminds us that summer (facetiously so called) is merging into winter. The new creations come to us from Messrs. Wright, Layman & Umney (Limited), of 48 Southwark Street, S.E., who are large manufacturers of extract of malt and its preparations, and, besides, are large packers. The series gives the customer a selection to choose from (four of each variety), each of the designs being tasteful and several of them unique.

1903 Almanacks.—Messrs. James Townsend & Son, Little Queen Street, Exeter, remind us that the year is waning by sending us an assortment of almanacks and calendars for 1903. The almanacks are for distribution by chemists to their customers, and have certain pages for chemists' own matter in addition to space for name and address. The samples we have inspected are (1) the universal almanack, a booklet 7¼ by 4¾ inches, containing either twenty or thirty-six pages. A supplement of eight pages can also be supplied. (2) The bouquet almanack, 3½ by 2¼ inches, of thirty-two pages, with memorandum-pages; (3) the purse almanack, 2½ by 1¾ inch, with a tuck cover. We note also that Messrs. Townsend supply card-calendars for hanging on the wall, in various styles. Any of our subscribers can obtain samples of the various calendars and almanacks on application.

Messrs. Southall Brothers & Barclay (Limited), of Lower Priory, Birmingham, cater specially for medical and pharmaceutical students in that they put up collections representing the materia medica, botany, and histology required by the examinations. Their students' collections of organic materia medica are put up to represent the requirements of the medical and pharmaceutical examinations. The drugs are enclosed either in envelopes or cardboard boxes, numbered, and with a full key. The same sets are put up in labelled glass-cylinders for museum collections. The inorganic materia medica is contained in bottles, numbered, with full key. A herbarium of forty-five medicinal plants is offered for 10*s.* 6*d.*, and a set of twelve microscope-slides, showing botanical sections, &c., is supplied in a box, carriage paid, for 12*s.* 6*d.* This firm also supply sets of chemical apparatus for pharmaceutical students, and a special "Scientific Microscope," for 3*l.* 10*s.*

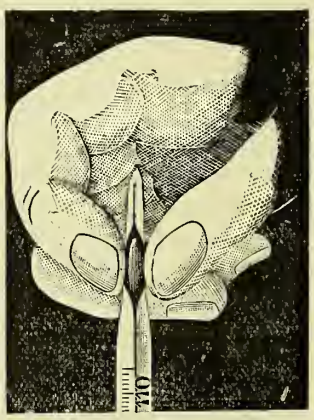
A Hypodermic Case.—The illustration herewith represents a new gunmetal pocket hypodermic case (3½ by 3⅛ by ¾ inches), designed by Messrs. Burroughs Wellcome & Co., of Snow Hill Buildings, E.C. The nickel-plated frame is detachable, and holds a revolving rack accommodating twelve tubes of "tabloid" hypodermic products. On the frame, clips are also provided for the syringe and finger-grip, besides



holders for two ordinary needles and one exploring-needle. The ordinary patent syringe, or the B. W. & Co. all-glass aseptic syringe, will fit the holder. The particular merits of the case are its strength, lightness, and durability; it can be carried in the vest-pocket, and, the fittings being removable, the whole case can at any time be readily rendered perfectly aseptic.

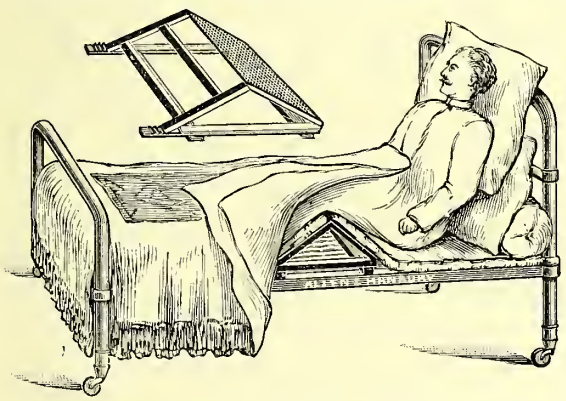
First-aid Asepsis.—A nicely polished wooden case, with a screw-top, acting as protector for a dainty glass tube containing one dozen 15-gr. tablets of chinosol; these are the external attributes of the First-aid Antiseptic and Sanitary Hygienic Requisite-case, produced by the Chinosol Hygienic Company, of 36 St. Mary-at-Hill, E.C. The ready solubility and non-poisonous and non-corrosive properties of chinosol make it a most acceptable antiseptic for general use, and the quantity of antiseptic solution represented in these twelve tablets renders it comparatively inexpensive. Round each glass tube a printed slip gives full directions as to the use of the tablets for household disinfection or personal hygiene; the initial price (1*s.* 6*d.* complete) is not high, and tubes are refilled for 1*s.* Besides a liberal discount, chemists have the supplementary advantages of enticing literature and attractive showcards to help the sale.

The "Repello" Clinical.—Of all the methods for getting the mercury back to its place in a clinical thermometer we have not seen one which does it so easily and quickly as that patented by Mr. G. H. Zeal, clinical-thermometer manufacturer, 82 Turnmill Street, E.C. In his new "Repello" thermometer the capillary stem is continued up to the top, where it widens out into a circular disc that is filled with mercury, the disc being of compressible glass. Between the mercury in this disc and that in the thermometer-bulb and stem there is a trace of air, which prevents the two portions of metal running together. After the thermometer has been used, all that one has to do to make the mercury in the stem run down to 95°, or below it, is to squeeze the disc with the finger and thumb, as shown in the figure. It is wonderfully easy. The authorities of the National Physical Laboratory at Kew have tested the thermometers, and reported that they can certify them. We have read a letter from a North London medical man, who has used one for six months, and he says he never used anything so simple. Mr. Zeal makes the thermometers in various styles. They cost more than the usual kind, and are patented.



"BURN-O" is the name that has been given to a new manner for making methylated spirit portable. A tin box is filled with a light, porous, and non-combustible mass (the essential part of the invention), and upon this methylated spirit is poured until no more is taken up. It is now ready for burning, and while it burns the substance does not liquefy, so that if the "Burno-o" box accidentally upsets, the ignited spirit does not run out. This is a distinct advantage. "Burn-o" is supplied either saturated with spirit or dry, the latter form being particularly useful for export. It retails at 3*d*., 4*d*., 6*d*., and 1*s*. a box, and can be used over and over again by re-charging with spirit. The patentees are Billing's Burn-o Company, 180 Wardour Street, and the sundries houses stock it.

TO COMFORT THE SICK.—The tendency of bedridden patients is to slip down in bed, and the weightier the patient the greater the necessity for keeping the shoulders raised. The raised position is often a question of life to the patient, and the lifting of a helpless patient is a terrible tax on both



nurse and sufferer alike, so that the "Sister Doris ' bed-rest recently introduced by Messrs. Allen & Hanburys (Limited) is likely to be blessed by both. It is claimed for this bed-rest that it transforms the ordinary bed into a comfortable lounge, on which it is impossible for the patient to slip down. By means of the bed-rest such necessities as the bed-pan can be more easily applied. The price of this article, which was designed by Dr. George W. Ord, is 21*s*.

Sale and Dispensing of Poisons.

AT the Battersea Coroner's Court on September 1, Mr. J. Troutbeck held an inquiry concerning the death of Adelaide Edith Skinner (21), wife of a Battersea carman, who died from the effects of morphia-poisoning. The husband stated that both his wife and her mother were under treatment by Dr. Meyler, who had prescribed medicine for each in similar bottles. One mixture was darker than the other. When he got home from work one evening he found that his wife had taken some of her mother's medicine by mistake, and she was suffering from headache. Next morning he heard her making a gurgling noise, and being unable to awaken her he sent for the doctor, who attended her until her death, two days after. His mother-in-law lived at another house in the same street, but having come to his house she had brought her medicine with her. Dr. Thomas E. Booth Meyler, of Battersea Park Road, stated that he had prescribed morphia in increasing doses for a malignant and incurable growth for the deceased's mother. There would be 2 gr. in each dose. Mrs. Skinner came to him suffering from neuralgia, and he prescribed 25-gr. doses of bromide of potassium. When next called he found her deeply comatose and suffering from morphia-poisoning. He prescribed an antidote and resorted to artificial respiration, but she died. A *post-mortem* examination revealed that the cause of death was asphyxia from morphia-poisoning. The witness knew that Mrs. Skinner was nursing her mother. It was not customary to put such medicines in poison-bottles, as it was not *de facto* a poison to the patient for whom it was dispensed. A juryman said he thought the mixture should have been put in a fluted bottle. The witness repeated that it was not usual to do so. The Coroner: What possible objection is there for putting it in a poison-bottle? Because when the patient dies, as she must do at some time, the relations might have a suspicion that she might have been killed by it. The Coroner: And that is the only objection you can advance? In summing up the Coroner said this was obviously a case of misadventure. Looking at the two bottles it was not at all an unnatural mistake for anyone to make. He thought the doctor's explanation was a very wild one, and he could not see that there was any answer to the suggestion made by several members of the jury. When a medicine was dangerous to other people it ought to be marked for the protection of other people. These were ordinary bottles with ordinary labels, and there were hundreds of bottles like them. The result had been proved in this case—somebody had made a mistake and been killed. The jury returned a verdict of death by misadventure, and added a rider that there should have been a label on the bottle indicating its poisonous contents. The Coroner: I quite agree.

At the City Coroner's Court on September 3, Mr. F. Danford Thomas, the Deputy Coroner, held an inquiry into the death of Richard Geo. Walker (73), who poisoned himself with oxalic acid, and died in St. Bartholomew's Hospital a few hours later. The Coroner said it was quite clear that the deceased took his life through depression over having no regular work, but the mystery was, Where did he get the acid from? A Juryman: It can be bought anywhere, the same as all poisons can. The Coroner: You are not right there, for most poisons are restricted by the Act, and cannot be purchased by the public. The Juryman: That, sir, is the absurd yarn we have been told for years. Poisons are as easily purchased to-day as twenty years ago, and there are more poisons obtainable by the public than those unobtainable. A child of 10 can go to any oilshop and get two packets of carbolic for 2½*d*.—enough to kill a household. Oxalic acid can be got by saying it is for cleaning brass, as doubtless the deceased did. Opium is easy to get, as shown by the persons who habitually take it. The Coroner: But the more dangerous poisons, like strychnine, are carefully restricted. Another Juryman: I disagree there, for I know of a case where it was easily got, and there is the noted case of the murderer Horsford a few years ago, who got it yet was only a farmer. Another Juryman: I quite agree with my fellow-jurymen that poisons are not properly restricted as most people believe, and it is time they were. The only restriction regarding the sale of carbolic appears to be that it is not given away now by the Vestries; people have to buy it in the powder themselves and dissolve it. Persons working in the jewellery, silver-plating, and kindred trades can get any quantity of deadly poisons by merely being recognised as one of Messrs. So-and-So's workmen. The Coroner: But oxalic acid would have to be got from a chemist's shop, and labelled on the packet. A Juryman: Oh, no; the grocer's or oil shop is quicker, cheaper, and no questions asked. Poisons of any description should not be sold at all to the public unless the purchaser can give positive proof of the use it is intended for. The Coroner said every effort, he believed, was being made to so restrict the sale of poisons as to render such cases as that of the deceased impossible, but all legislation had to go by steps, and could not be settled at once. One of the jurymen retorted that it had taken years and years to deal with a very few poisons, and even now the Act was so weak that much the same state of affairs existed as before. The Coroner: But we do not read of so many cases of carbolic-poisoning as we used to. The Juryman: A would-be suicide has half-a-dozen good poisons to choose from, and he can get them as easily as he can buy a revolver. Dr. Ernest Pringle, house physician at St. Bar-

tholomew's Hospital, in reply to the Coroner said there were still a large number of poisoning-cases of various kinds admitted to the hospital. After further discussion the jury returned a verdict of suicide whilst of unsound mind, and added a rider that the sale of oxalic acid and other deadly poisons should he more closely restricted.

Duty-free Alcohol.

Wholesale Druggists are Not Likely to Get it.

THE *Birmingham Evening Dispatch*, referring to the new provisions regarding duty-free alcohol which were introduced into the Finance Act, states that in order to ascertain exactly how chemists would be affected hy the Government's new clause, Mr. John Barclay, of Birmingham, took the advice of an eminent K.C. who is universally accepted as an expert in trade-law, and under his direction wrote to the Inland Revenue Office. He pointed out that hitherto manufacturing chemists had been much handicapped in competition with German manufacturers through having to use methylated spirit, which, on evaporation or distillation, left a residue having a more or less pronounced smell of the wood-naphtha. To be able to use pure spirit, he continued, for the purpose for which hitherto they had had to use the methylated variety would be a considerable boon, and would make a material alteration in their methods of manufacture. The reply from the Inland Revenue Commissioners was to the effect that it would only be in special cases that they would grant the concession. In addition, there were many conditions imposed of a sufficiently restrictive nature to make the chemist pause hefore deciding to use the pure spirit. It is laid down, for instance, that the spirit must be rendered unpotable before and during use.

"That would be a most difficult thing to do," was Mr. Barclay's comment to a reporter.

Another condition was that "from time to time the manufacturer may have to pay any expenses that may be incurred in placing officers in charge of his premises."

"That means," said Mr. Barclay, "that a separate place would have to he kept under lock and key, and under the control of the Excise officers. But very few manufacturers could afford to carry out their instructions, for the use of pure spirit is only required in a portion of their business. Of course a number of manufacturing chemists might combine and have a special huilding on those lines, hut for one man to do so would he impossible. So that really the concession amounts to little or nothing."

Another point to which Mr. Barclay drew attention in his letter was the manner in which home chemists are handicapped in competition with Germans, in regard to the exportation of tinctures containing pure spirit, owing to the red-tape methods of the Inland Revenue in granting the rebate to which they are entitled. Large firms have to employ a chemist to do nothing else hut analyse and test the articles to he sent abroad. Freedom from such methods would result in a much greater share of the foreign and colonial trade coming to England.*

On this point the Inland Revenue Commissioners merely state that "the question of Excise restrictions is quite separate from the question of spirit in compounds for export."

"In some cases," said Mr. Barclay, "large aniline-dye makers may find it worth their while to fall in with the Excise requirements and obtain the concession, but the manufacturing chemist who supplies the drugs and medicines and chemicals for the public will not benefit much, if at all."

The Collector of Revenue at Birmingham remarked to a reporter that he was not surprised that the Commissioners had decided to reserve to themselves the right to grant the concession, and had not issued general regulations because of the difficulty of preventing evasions of the law.

* There seems an exaggeration here, probably due to the reporter. London firms who are regularly exporting spirituous preparations under drawback, find little more difficulty in doing so (once they get into the swing) than in sending similar preparations to the provinces.—Ed. *C. & D.*

Correspondence

TO CORRESPONDENTS.—Please write clearly and concisely on one side of the paper only. All communications should be accompanied by the names and addresses of the writers. If queries are submitted, each should be written on a separate piece of paper. We do not reply to queries by post, and can only answer on subjects of general interest.

A Suggestion.

Sir,—Could it not be arranged to send every member of Parliament a copy of Mr. W. S. Glyn-Jones's address at the Public Health Congress? Also for chemists to huy in cheap pamphlet-form for free distrihution to the public?

Yours truly,

Sutton, S.W., August 29. E. J. Loosmore.

Gapes in Chicken.

Sir,—I read with much interest your valuahle article on this distressing complaint, having in former times kept fowls, amongst whom some cases of "gapes" occurred. An old henwife recommended a remedy, which proved effectual in each instance: equal parts of castor oil and gin, well shaken together, and administered in doses of a teaspoonful stopped the complaint. The mixture seems reasonahle, and likely to detach the parasites without the aid of mechanical skill, which must necessarily require dexterity, and cannot insure the removal of every one of these disgusting varmints.

Yours faithfully,

R. G. Mumbray.

Explosive Lime-cream.

Sir,—I, too, have had trouhle with decomposing lime-cream, and, like your correspondent, have noticed that it takes the form of fermentation. After many experiments and much perplexity, I came to the conclusion that it was due to insufficient mixing. I now put all the ingredients into a hottle capable of holding half as much again and shake vigorously. It is not enough merely to shake for five or ten seconds. The mixture will look white, it is true, hut if the shaking is not continued decomposition is a certainty. The agitation should be continued until the cream becomes so thick that it is difficult to shake it at all. Since giving attention to this little point I have had no trouble.

Yours truly,

Hants. (36/31.)

Mr. Gifford on Law and Jobbery.

Sir,—To the mass of "lying innuendoes" indulged in so systematically I propose to give no attention. It is quite sufficient for the purpose to get at the facts, and they are simple. It was said "that the Council of the Pharmaceutical Society have not ignored what has been said ahout a test-case, hut have considered it assiduously, and almost hesought the hest legal experts to formulate a charge against companies using our titles, and have been told that there is nothing penal to go upon." I gave a flat contradiction to the assertion, and now repeat that the statement is altogether unwarranted. I know of no advice obtained since 1885 supporting the contention. I do know of advice opposed to it, ohtained, and in the possession of the Council. Who is right? Am I right? Then the approval of the Conference meeting was obtained by unjustifiable means! If I am wrong it should be proved hy facts categorically stated. A policy of waiting upon events demands explanation: a mere *ipse dixit* is useless. There is every evidence that puhlic opinion has developed rapidly in recent years against unqualified practice, and it seems to me stupid to neglect taking advantage of this. It is impossible to suppose that exposure of the Gilhertian ahsurdity of the pharmacy law would not result in its early alteration. The simplest way to do this would be to fight a case in the law courts. Circumstances over which I have no control compel allusion to Council methods. A piece of jobhery is being consummated at the present time which is a scandal. I have asked

for, and expected to have, an opportunity of drawing public attention to the matter, but have been unable to get it. I cannot get away from the conviction that the Pharmaceutical Council forgets its duty to registered chemists.

Yours faithfully,

Blackburn, September 2. R. LORD GIFFORD.

[This is getting to be exciting. What is the jobbery referred to? We give Mr. Gifford the opportunity of telling.—EDITOR.]

Acetic Acid.

SIR,—"Acid. acet. fort." is not necessarily B.P. As a rule it is not B.P., but an acid containing 30 per cent. only. A well-known firm of makers used to advertise regularly in the *C. & D.* three varieties of acid—"acid. acet. glacial.," "acid. acet. B.P.," and "acid. acet. fort." The last-named is well understood in many trade quarters as containing only 30 per cent. acid. A READER. (56/32.)

The Vanishing Title.

SIR,—Whatever modifications may be made in the agreement which a well-known drug-company have lately been requesting some of their managers to sign, I understand they refuse to eliminate the word "assistant." Therefore any man who signs calls himself a "chemist's assistant." It is obviously the intention of the company to make the title worth as little as possible to their managers and as much as possible to themselves, and it is a continuation of the policy which led them a short time ago to insert the word "chemists" into their registered title. In the course of time they might reasonably claim to have a "vested interest" in the title, and we all know how Parliament "shies" at those words, especially when there is capital behind them.

Surely there must be some way in which the Pharmaceutical Society can put a stop to this. Every month the attempt is put off will make the task so much the more difficult. As for the men who join the companies, they ought never to forget that without their services drug-companies could not exist as they do at present; and no matter how much the manager or managing directors may assure them that they can get as many men as they want at two guineas a week, they can, if they like, obtain almost whatever they choose. If it were such an easy matter to obtain qualified men, I do not think companies would pay the fees of their assistants at pharmacy classes and offer scholarships out of their own funds, as I am given to understand is the case. I am certain that the only way to obtain redress or privileges is to form an Association on trade-union lines, and I believe this will come in time if the companies only tread on the worm a little harder. Yours, &c.,

ONE WHO VALUES THE TITLE. (48/30.)

NOTE.—*We have more correspondence in hand this week than we can find room for.*

Legal Queries.

56/62. *Ferrum.*—Your nursery hair-lotion label does not require a stamp, nits and parasites not being considered a malady.

54/55. *Pix.*—Read the article on wine-licences in THE CHEMIST AND DRUGGIST of August 23, page 342, which applies to Wales. The chief constable of your district will inform you of the steps to be taken locally in order to obtain a wine-licence under the new conditions.

55/31. *G. C. A.* (St. Moritz).—No dictionary word, English or foreign, can by itself be registered as a trade-mark in this country, but such a word as "Nebel" may be incorporated in a coined word, the conditions in regard to such words being now rather lax.

53/74. *G. H. B.*—Chlorodyne, as generally compounded is a poison which grocers (who are not registered chemists and druggists) may not sell. Linseed, chlorodyne and liquorice lozenges do not necessarily contain chlorodyne, and are so commonly sold by unqualified persons that we presume the Pharmaceutical Council considers them not to contain a poison.

152/28. *G. A. C.*—It would have been much better if you had sent us the actual agreement which you signed, and of which we presume you have a duplicate. It appears, however, from the statement which you make that the contract you have entered into has not been fulfilled by the other contracting party in so far as you were to have the sole agency for the district, and the fact that another chemist is selling the goods appears to be inconsistent with that. You should assure yourself that the other chemist *is* an agent before you repudiate the contract. He may possibly have bought the goods independently and may hold no agency.

58/15. *G. W. D.*—There is no legal objection to a chemist and druggist styling himself "pharmaceutical wine-merchant" if he holds a wine-licence.

Miscellaneous Inquiries.

We endeavour to reply promptly and practically to trade questions of general interest, but cannot guarantee insertion of replies on a particular date, nor can we repeat information given during the past twelve months.

51/57. *X.*—**Books on Photography.**—Abney's "Instruction in Photography," 3*s.* (Sampson Low & Co.), and Abney's "Treatise on Photography," 5*s.* (Longmans, Green & Co.). The latter goes more fully into the scientific side of the art.

15/72. *I. B.*—**Black Cream for Kid Boots:**—

Gelatin	℥viij.
Iceland moss	℥j.
Ivory black	℥iv.
Fast blue-black	℥j.
Creosote	♏ij.
Water	Oiv.

Soak the gelatin in 2 pints of water overnight, and dissolve in a water-bath. Boil the Iceland moss with a pint of the water for half an hour, and strain. Dissolve the aniline dye in the other pint of water, and mix with the other ingredients, the ivory black to be first rubbed smooth with some of the warm gelatin solution.

44/10. *Mizpah.*—(1) **Tan-boot Polish.**—This is made on the model of furniture-cream, with the addition of colouring-matter. We have published formulæ at various times, but recommend you to experiment to produce a perfect paste. Carnauba wax and turpentine seem to be the necessary ingredients, the former of the highest specific gravity obtainable, and the latter in the proportion of about 2 oz. to the pound. (2) **Calf-boot Cream.**—See reply to "I. B." (15/72) for a representative formula of the modern type. (3) **Removing Stains from Brown Boots.**—Wash off the old polish with turpentine, then use oxalic-acid solution to remove the stains. Spirit is also good for some kinds of stains.

48/25. *Plumbi.*—**To Make a Dog's Coat Curly,** it is moistened with the following solution by means of a hair-brush:—

Potass. carb.	℥ss.
Ol. amygd.	℥ss.
Ol. geranii	♏ij.
Aq. dest. ad	℥viij.

Dissolve the pot. carb. in 2 oz. of the water, add the ol. amygd. and ol. geranii, shake, and add the rest of the water. The mixture is shaken before use.

252/40. *Cyclist.*—We have no formula for a nutritive lozenge to meet your requirements.

51/58. *W. F. E.*—We dare say the firm have adopted the system as an advertisement.

52/73. *W. E. M.*—We cannot undertake to examine the ointment, about which you give no particulars.

42/51. *Medicus.*—The freight on drugs from London or Southampton to Cape Town and Port Elizabeth, per Union Castle Line (mail steamers) is 45*s.* per ton of 40 cubic feet, *plus* 10 per cent. for primage, which is returnable. Other South African ports are dearer in proportion. If there should only be one case of drugs, measuring, say, 15 cubic feet, the minimum freight-charge would be one guinea in lieu of

above. Drugs, such as tinctures, extracts, infusions, and the like, are subject to a duty of 7½ per cent. For further information see our article on "South African Tariffs." (*C. & D.*, March 23, 1901, page 480).

44/70. *H. A. N.*—It is impossible for you **To become an M.R.C.V.S.** without first passing one of the examinations recognised by the General Medical Council for registration as a medical student, then entering upon a course of study in one of the recognised veterinary colleges in Great Britain and Ireland, and at the end of each collegiate year passing the examination held by the Royal College of Veterinary Surgeons. The curriculum lasts four years, and there are four examinations. It is impossible for the Royal College to give authority to any colonial board to examine such an applicant as yourself, who has had no collegiate training, and who does not satisfy the conditions.

53/38. *N. & Co.*—Refer to index of last volume for references to formulæ for dry shampoo.

53/61. *Ros.*—We do not recognise the potato-insect. It is not the Colorado beetle.

44/22. *Cæsar* asks if we can tell him the value of a worm-eaten copy of "Cæsar Pontifice," dated 1526. Perhaps some of our bibliophilic readers can help "Cæsar."

50/28. *J. K.*—Xylonite is the trade name for celluloid made by the British Xylonite Company. Celluloid was invented in 1870, the patents 1,025 of 1871 and 3,101 of 1872 being granted to J. S. and J. W. Hyatt. If you wish to look up the subject and follow the subsequent improvements, you should obtain copies of these specifications and also the abridgments published at the Patent Office. Celluloid is placed with indiarubber in Class 70, the volumes 1877–83, 1884–88, 1889–92, 1893–96, being 1*s.* each. The abridgments for 1867–76 and 1897–1900 are in course of publication.

52/25. *C. E. F.*—**Removing Smoke from Glass.**—Hydrochlorie acid, with or without kieselguhr, is used for this purpose in London.

54/61. *Telephone.*—If celluloid surfaces are moistened with amyl acetate and pressed together, they will adhere.

26/11. *A. A. S.* (N.S.W.)—(1) Try rad. anchusæ for colouring the mixture of turpentine and carbolic acid. (2) **Ligrosine** is a petroleum product, used as a solvent. Its sp. gr. is 0·710 to 0·730. (3) **Myrobalans** contains 30 to 40 per cent. of tannin, **Algarobilla** 60 per cent., and galls from 65 to 77 per cent. If the price is in accordance with the percentage of tannin, the above substances are suitable for ink-making. (4) **Ceresin** is a natural mineral product, used under the name of Ozokerite in candle-making. Madras wax is beeswax bleached in India. It is in thick slabs, and is used in candle-making. (5) The acetanilide and sweet-nitre mixture should not be kept long before administration. (6) We are inquiring as to makers of hematine.

Information Supplied.

Oliver's Snuff.—56/58, *L. D.*, writes:—"Oliver's snuff = hellebore snuff or pulv. hellebori. Chemists who love their fellow-men decline to sell this as snuff."

"**Alewort**—The fermenting infusion of malt." "New English Dictionary" quotation from an old farriery book recommending 2 pints of it to be given to a horse. This is probably what "Chemicus," 29/47 (*C. & D.*, page 400), requires.

Strewing Smalts.—A Toronto subscriber writes: Your answer (*C. & D.*, page 250) about 'strewing smalts' is not correct. Blue strewing smalts was formerly used as a decoration on signs. On a blue painted ground, covered with gold-size it was strewn, and adhered, the letters being of gold-leaf. Such signs forty years old are still in use. Strewing smalts might be had dark and light blue, coarse and fine, red, green, violet, and black. An analogous process was to 'sand' pilasters and columns in imitation of stone. Black used on gold-lettered signs is still in use, the others may be found in an old colourman's stock."

Information Wanted.

59/34. Actual makers of aseptic hospital-furniture.

56/16. Manufacturer of Nurse Cave's urinal or where it can be obtained.

53/49. Address of proprietor of Dr. Nagy's sterling-silver fluid for plating metal.

1/14. Makers of a veterinary medicine-chest painted green, with white horse's head painted on top.

London Drug Statistics.

The following statistics are compiled from information supplied by public warehouses. They relate to the receipts and deliveries of some of the leading drugs from and into the London public warehouses for the month of August, 1902, and to the stocks on August 31.

	August		Stocks		1902	
	Landed	Delivd.	1902	1901	Imprtd.	Delivd.
Aloes..... cs, &c.	150	71	1,710	2,657	1,494	1,201
" ..... gourds	—	—	—	166	904	1,050
Aniseed, star .... cs	—	—	7	34	35	41
Arrowroot.....brls	836	666	13,750	10,796	15,563	9,532
" bxs & tins	202	69	1,016	961	1,013	752
"Balsams" cks, &c.	89	59	673	554	739	683
Calumba ..... bgs	—	—	—	—	—	—
Cardamoms .. cs, &c.	823	555	2,511	2,440	4,579	4,014
Cinchona .... pkgs.	1,048	2,755	8,971	11,711	15,049	16,376
Cochineal ..... bgs	8	52	758	1,301	275	613
Cubebs ..... "	—	29	1,179	1,636	72	278
Dragon's-blood .. cs	13	9	83	65	115	90
Galls..... pkgs	115	570	6,307	10,018	2,518	4,407
Gums—						
Ammoniacum pkgs	—	—	56	89	—	30
Animi & copal "	3,283	3,904	19,526	19,412	31,165	34,075
Arabic ..... "	1,174	1,507	12,397	15,215	12,328	16,939
Asafetida .... "	—	25	713	661	1,237	1,291
Benzoin .... "	43	218	1,149	1,389	2,369	1,976
Damar ..... "	299	172	3,043	3,448	2,286	2,527
Galbanum .. "	—	—	—	9	—	—
Gamboge .... "	—	8	56	141	79	119
Guaiacum.... "	5	4	42	49	24	26
Kauri ..... tons	145	167	885	1,380	1,305	1,878
Kino.....pkgs	4	5	185	108	128	59
Mastich .... "	—	3	14	1	27	19
Myrrh, E.I. .. "	8	52	105	125	356	247
Olibanum .... "	41	554	3,031	3,391	5,588	3,507
Sandarac .... "	83	84	1,868	876	1,994	720
Tragacanth .. "	315	1,100	3,057	5,265	8,107	9,344
Ipecacuanha, Rio bls	179	37	667	584	438	336
" other kinds pkgs	15	27	579	283	434	251
Jalap ..... bls	—	3	123	171	32	58
Nux vomica .. pkgs	—	120	286	11	707	437
Oils—						
*Aniseed, star .. cs	5	75	759	167	395	315
*Cassia ..... "	—	106	257	138	185	282
Castor ..... pkgs	293	271	771	860	2,279	2,137
Cocoa-nut.... tons	159	79	262	86	863	700
Olive .... cks, &c.	190	289	1,542	1,326	2,480	1,973
Palm..... tons	6	2	7	13	23	32
†Quinine ..... lbs	375	9,558	222,547	229,235	37,785	37,550
Rhubarb ..... chts	81	53	330	474	454	617
Sarsaparilla .... bls	114	70	199	203	784	761
Senna ..... bls, &c	517	318	1,621	1,517	2,335	3,206
Shellac ..... chts	4,670	6,457	29,697	38,201	36,559	35,948
Turmeric ..... tons	48	34	532	441	416	307
Wax, bees .... pkgs	678	209	1,706	1,925	3,333	3,356
" Japan ..cs, &c.	10	10	242	302	407	450

* Stocks lying at Smith's Wharf and Brewer's Quay are not included in this return.

† Includes the quantity at Red Lion, Bull, and Smith's Wharves; also the Docks.

Coming Events.

September 6 to 13.

Confectioners', Bakers', and Allied Traders' Exhibition, Agricultural Hall. Daily from 10 A.M. to 10 P.M.

Monday, September 8.

Dewsbury Chemists' Association, Church House, Dewsbury, at 8.30 P.M. First meeting of the Session.

Tuesday, September 16.

North-East Lancashire Chemists' Association, White Bull Hotel, Blackburn, at 9.15 P.M. Meeting "To consider the attitude of the *Pharmaceutical Journal*."

Trade Report.

NOTICE TO BUYERS.—The prices given in this section are those obtained by importers or manufacturers for bulk quantities or original packages. To these prices various charges have to be added, whereby values are in many instances greatly augmented before wholesale dealers stock the goods. Qualities of drugs and oils vary greatly, and higher prices are commanded by selected qualities even in bulk quantities. It would be unreasonable for retail buyers to expect to get small quantities at anything like the prices here quoted.

42 Cannon Street, London, E.C.: September 4.

THERE is slightly more activity in the drug and chemical markets this week, and there are a few important changes in value. Makers reduced the price of quinine as expected, and at the low values now ruling in the second-hand market business has improved somewhat. Codeine and salts have been advanced 10*d*., that being the amount by which they were reduced in May last to meet competition on the part of Swiss makers of the synthetic product. Menthol is firmer than what it was last week, but still quiet. Opium is unchanged, and little business doing. Morphine is not quite so firm, and prices have an easier tendency. Spices have been quieter this week, and the auctions on Wednesday were small. Cream of tartar, citric and tartaric acids are all quiet. The following table shows the principal fluctuations of the week, including those recorded at the drug-auctions :—

Higher	Firmer	Easier	Lower
Buchu Codeine and salts Golden seal Rose-petals	Benzoin (Sumatra) Sarsaparilla (Nativo-Jamaica) Senna (Tinn.)	Cardamom-seed Quince-seed Wax, bees' (Jamaica)	Aloes, Curaçao Cardamoms Chiretta Guaiacum Ipecacuanha (Rio) Kamala Oil, castor (E.I.) Quinine and salts (makers') Wax, bleached Calcutta

Liverpool Drug-market.

Liverpool, September 3.

Transactions have been on a most limited scale, there being extreme depression owing to the absence of demand, but partly owing to the holiday-season.

CASTOR OIL.—Owing to absence of demand good seconds Calcutta is very flat, and with heavy arrivals it can be bought at $2\frac{5}{8}d.$ to $2\frac{11}{16}d.$ per lb. ex quay.

BALSAM COPAIBA.—Some thin Para sold at 1*s*. 4½*d*. per lb. for export to the Continent. Maranham is held firmly at 1*s*. 9*d*. to 1*s*. 10*d*. per lb.

TURMERIC.—Stocks are rather accumulating and prices are nominal, at 12*s*. 6*d*. to 14*s*. per cwt. for fine Madras.

HONEY.—A fair amount of very low quality has been sold for shipment to the Continent at prices ranging from 13*s*. to 15*s*. per cwt.

COCHIN GINGER.—Very scarce with some inquiry, 42*s*. 6*d*. per cwt. being the value.

BEESWAX.—Some very fine Chilian has been sold at from 7*l*. 15*s*. per cwt., according to quality.

CANARY-SEED (SPANISH).—There is some inquiry but none is offered.

TONKA-BEANS.—There was considerable competition for inferior parcels of Para, which sold at the high prices of 1*s*. 3*d*. to 1*s*. 6¾*d*. per lb.

GUM ACACIA.—The market is stronger owing to reports from Cairo, but only retail transactions have taken place at recent rates.

QUILLAIA-BARK.—13*l*. 10*s*. per ton has been paid, but only small transactions are reported.

AFRICAN GINGER has sold freely at 42*s*. 6*d*. per cwt.

German Drug-market.

Hamburg, September 2.

Business in general is quiet and our drug-market shows few changes since last week.

AGAR-AGAR is steady, with only small stocks, at 300m. per 100 kilos.

CAMPHOR (REFINED) is dull second-hand holders are selling at 410m. to 405m. per 100 kilos.

CONDURANGO-BARK is quiet and shows no business; present quotations are 65m. to 60m. per 100 kilos.

CANTHARIDES is firm, at 525m. per 100 kilos.

ERGOT is neglected, at 310m. to 300m. spot and 280m. to 275m. per 100 kilos. for forward delivery; Spanish quiet, bids are requested at 315m.

IPECACUANHA is dull; Rio is quoted 18m., and Cartagena 9m. per kilo.

KOLA is firmer; 65m. per 100 kilos. is asked.

LYCOPODIUM is very firm and scarce, 465m. per 100 kilos. is asked for cases; the new crop is reported to be only small, and 450m. to 460m. per 100 kilos. is asked for shipment.

MENTHOL on the spot is firm, at 34m. per kilo.

QUININE is very dull; the factories have reduced their prices to 29m. per kilo.

SENEGA is firm, at 600m. per 100 kilos.

SUGAR OF MILK shows a better tone; 77m. per 100 kilos. is asked for contract-quantities, and 80m. to 85m. for single cases.

JAPANESE WAX is firm, at 105m. per 100 kilos.

CASTOR OIL shows more demand for forward delivery, at about 48m. per 100 kilos., while spot-delivery quotes 51m. to 50m. per 100 kilos. for first-pressing.

COD-LIVER OIL.—Non-congealing is unchanged at 130m. to 135m. per barrel.

PEPPERMINT OIL (HGH) is steady, at 9.80m. to 10m. per lb.; with only small stocks in hand locally. Japanese is 9.90m. per kilo.

STARANISE OIL is quoted 10¼m. per kilo.

American Drug-market.

New York, August 26

The market is quiet, and little interest is displayed. American crude drugs are exciting the most attention.

BUCHU-LEAVES are higher, owing to speculative movements. Prime green short are quoted 26c. to 30c., and yellow down to 23c. per lb.

CAMPHOR.—American refined has declined to 56½c., in bulk.

CHAMOMILE-FLOWERS.—New-crop Roman are lower, owing to abundant supplies. Dealers ask 14c. per lb.

CINCHONIDINE is neglected, at 20c.

ERGOT.—Russian can be bought at 35c. and Spanish at 37c. to 40c.

IPECACUANHA.—Rio is neglected, and $2.30 is a nominal quotation. Cartagena is down to $1.

JAPAN WAX is scarce, at 11c. to 12c. per lb.

OIL OF PEPPERMINT.—HGH is firm, at $2.25, but bulk is a trifle easier, with supplies obtainable at $1.95.

OPIUM is slow of sale, at $2.70.

QUININE.—German is selling from second hands at 26c., and Java at 20c.

SENEGA has advanced to 65c., and seems likely to go higher. Receipts from primary sources are larger, but not equal to the usual demand.

SERPENTARY is scarce, at 37c. per lb.

HYDRASTIS is in light supply on the spot, and 52c. to 55c. per lb. is generally asked.

Cablegrams.

SMYRNA, September 4, 2.56 P.M. :—The market for opium closes firm. The sales for the week ending Wednesday amount to 60 cases, and the prices paid range from 7*s*. to 7*s*. 6*d*. per lb.,, f.o.b., according to quality.

HAMBURG, September 4, 2.12 P.M. :—Refined camphor remains steady. Some business has been done in second-hand at 407½m. per 100 kilos. Ipecacuanha is dull of sale at 16¾m. per kilo. for Rio. Kola-nuts are firmer at 70m. per 100 kilos.

AMERICAN DRUGS.—The following are a few current net quotations for spot parcels :—Bayberry-bark 34*s*., blackhaw 5¼*d*., hemlock 1¾*d*., sassafras of root 32*s*. 6*d*., wahoo of root 9*d*., wild-cherry 3½*d*., grindelia robusta herb 3*d*., and skull-cap 7*d*., damiana 7½*d*., deer-tongue leaves 7½*d*., blood-root 3½*d*., blueflag 4½*d*., culvers 4½*d*., and kava-kava 7*d*. per lb.

Arrowroot.—At auction on Wednesday St. Vincent's was bought in at 2¼*d.* per lb. for ordinary manufacturing, and Trinidad at 2*d.* per lb. for soft quality.

Borax.—The exports from Arica, Chili, during 1901 amounted to 965 tons to Liverpool, and 121 tons to Hamburg.

Canary-seed remains firm, the price for shipment from Turkey being above the spot value. A steady business is passing at 42*s.* per quarter for Turkish, and at 43*s.* to 45*s.* for good Morocco kinds. A Constantinople report, dated August 30, states that the market is very firm at 12*s.* to 12*s.* 3*d.* per cwt.; at present the arrivals of new crop is sufficient to supply the requirements of dealers, and a rise is thus prevented.

Cinchona. — The N. .V Ned. Veem. reports that the shipments from Java to Europe during August, 1902, amounted to 1,857,000 Amst. lbs. :—

Year	Amst. lbs.	Year	Amst lbs.
1901	1,067,000	1896	979,000
1900	977,000	1895	697,000
1899	1,200,000	1894	853,000
1898	1,047,000	1893	636,000
1897	697,000		

Total Shipments January-August.

Year	Amst. lbs.	Year	Amst. lbs.
1902	8,396,000	1897	4,931,000
1901	7,524,000	1896	6,029,000
1900	5,724,000	1895	5,013,700
1899	7,230,800	1894	5,554,000
1898	7,136,000	1893	5,376,000

In the drug-auctions 20 bales of flat Cartagena were taken out at 6*d.* per lb.

The exports from Ceylon from January to August have been :—

	1902	1901	1900	1899
Lbs. ...	347,090	442,093	342,167	474,233

Cocoa-butter.—The result of the auction held at Amsterdam on September 2 was as follows :—Seventy tons van Houten's sold at 67¾c. to 69¼c. (average price 68·20c., against 74·85c. at the previous auction). Six tons De Jong sold at 63½c.; 3½ tons Helm at 63¼c. to 63½c.; 2 tons Utrecht at 60c. to 61c. per ½-kilo. At the London auctions 60 tons Cadbury's brand sold at from 1*s.* 0½*d.* to 1*s.* 0⅞*d.* per lb., the average being about 1*s.* 1 1/16*d.*, against 1*s.* 1¼*d.* last sale.

Codeine has been advanced 10*d.* per oz., the pure alkaloid being now quoted at 10*s.* 5*d.* Hydrochloride is 9*s.* 2*d.*, phosphate 8*s.* 3*d.*, and sulphate 9*s.* 2*d.* in contract quantities.

Colchicum-seed is rather scarce, one holder quoting 1*s.* 7*d.* per lb., spot.

Copper Sulphate.—Good brands are quoted at from 17*l.* 15*s.* to 19*l.* per ton, spot.

Cream of Tartar quiet. Best white crystals are quoted 73*s.* per cwt. on the spot, and 75*s.* for powder; 98-per-cent. powder is 78*s.* 6*d.*

Golden-seal is dearer at 2*s.* 4*d.* per lb. net, spot.

Menthol is quiet at from 15*s.* 6*d.* to 16*s.* per lb., on the spot, for Kobayashi crystals, and 14*s.* 6*d.* to arrive.

Morphine.—Quotations are unchanged at from 3*s.* 8*d.* to 3*s.* 9*d.* per oz. nominally for hydrochloride powder, but some makers would probably sell at 3*s.* 7*d.*

Oil, Bergamot, is firm at from 8*s.* 9*d.* to 9*s.* per lb., c.i.f., according to grade.

Oil, Castor.—The demand is very quiet, Calcutta seconds being quoted 2¾*d.* per lb., spot.

Oil, Cod-liver.—Business is confined to retail lots, and quotations are a shade easier in some quarters. From Bergen, under date of August 30, our correspondent writes that the cod-liver oil market has relapsed into its former inactivity. Quotation for finest non-congealing oil is unchanged at 135*s.* per barrel, f.o.b. The exports from Bergen to date amount to 5,886½ barrels, against 7,409½ barrels at the same date last year.

Oil, Lavender.—The new English crop is fairly large, but yield is said to be small; 24*s.* 6*d.* to 25*s.* per lb. is quoted.

Oil, Lemon, is firm at 2*s.* 7*d.* to 2*s.* 9*d.* per lb., c.i.f., for prompt delivery, and 2*s.* 11*d.* forward.

Oil, Olive.—The exports of olive oil from Algiers last year amounted to 86 tons only, as against 413 tons in 1900. The bulk of the local production was required for home consumption. American-seed oil amounting to 4,177 tons was imported, as against 4,611 tons in 1900, or a decrease of 434 tons.

Oil, Peppermint.—Mitcham of the new crop is quoted at from 28*s.* to 30*s.* per lb., and old crop at from 24*s.* to 26*s.* The new is hardly ready for delivery yet. American is quiet, with sellers of HGH at from 10*s.* 3*d.* per lb. upwards; and Japanese dementholised is unchanged at 4*s.* 3*d.*, and to arrive 4*s.* 4*d.*, c.i.f., is quoted.

Oil, Wood.—Chinese is quoted 29*s.* per cwt. on the spot, and for present shipment about 25*s.*, c.i.f., is asked. Business to the extent of 20 tons for October-December shipment has been done at 24*s.* 3*d.*, c.i.f., in cases.

Opium quiet and unchanged. In the drug-auctions 5 cases country-damaged Persian sold at from 7*s.* to 7*s.* 9*d.* per lb., according to percentage.

Smyrna, August 22.—The market has been very active, sales amounting to 169 cases, including 40 cases new current talequale at 6*s.* 10*d.*, 56 new Karahissar talequale at 7*s.* 1*d.* to 7*s.* 4*d.*, 24 cases new Yerli talequale at 7*s.* 6*d.* to 7*s.* 8*d.*, and 49 cases new current Bogaditz at 8*s.* per lb., c.i.f. Ten cases of the above were for local speculation, the remainder being for England, the Continent, and U.S.A. The market closes very firm with buyers, and should the present activity be maintained a further advance is expected. The arrivals in Smyrna to date amount to 3,145 cases, against 1,860 cases at the same time last year.

Constantinople, August 30.—The market is quietly steady, and a further decline is not expected presently. This is owing to Smyrna exporters having encouraged native dealers to run up prices. If such had not been the case, we should, no doubt, have seen prices down to the same level as they were at the opening of the season. The week's sales amount to 6 cases druggists' at 6*s.* 6*d.* to 6*s.* 9*d.*, and 15 cases soft-shipping at 6*s.* to 9*s.* per lb., f.o.b.

The British Consul at Baghdad reports that in 1901 168 cases of 140½ lbs. each, valued at 11,800*l.*, were shipped at prices varying from 64*l.* to 73*l.* per case. These shipments were chiefly made to China, Egypt, and London. Later in the year prices in these markets fell to a great extent, and opium was purchased in Baghdad at 54*l.* per case.

Podophyllum.—Fall-dug is quoted 24*s.* per cwt., net, spot. Resin is obtainable at 8*s.* 9*d.* for 97 per cent. and 8*s.* for 80 per cent.

Quicksilver remains firm at 8*l.* 15*s.* per bottle.

Quinine.—On Friday of last week the German makers reduced their prices for sulphate by 1½*d.* per oz., and now quote 10½*d.* for 1,000 oz. in bulk. Howards' quotation has been reduced by 2*d.*, their price in bulk being 1*s.* 0½*d.* and 1*s.* 2*d.* in vials for not less than 1,000 oz. This reduction was, of course, quite anticipated in the second-hand market, but not so the heavy bark shipments from Java for September, which amounted to about 2,000,000 lbs. This had the effect of flattening the market, and before the week closed 9½*d.* was paid for small quantities of B and S and/or Brunswick. This week the market has been steadier, 9⅝*d.* to 9½*d.* having been paid on the spot, but not much doing. Salts of quinine have also been revised, and the following are the quotations for the more important English and German makes in 100-oz. tins: Citrate, 1*s.* 3*d.*; bisulphate, 11*d.*; hydrobromide, 1*s.* 2½*d.*; hydrochloride, 1*s.* 2½*d.*; lactate, 1*s.* 5*d.*; phosphate, 1*s.* 5*d.*; salicylate, 1*s.* 2½*d.*; and tannate, 5½*d.* and 9*d.* per oz.

At the quinine-auction held at Batavia on August 29 (instead of September 3 as previously announced) 3,400 kilos. Ed. II. were offered, of which 2,400 kilos. were sold at an average of 13fl. per kilo. (7½*d.* per oz., or about equal to 4¼c. Amsterdam unit), against 15fl. per kilo. at the previous auction.

Rose-petals.—French are dearer, being now quoted 2*s.* 11*d.* to 3*s.* per lb., c.i.f.

Saffron.—Last week's prices are firmly maintained, B.P. quality being quoted 26*s.* 6*d.* per lb., net.

Scammony-root.—Further business has been done at 27*s.* 6*d.* per cwt., spot.

SENEGA.—Several small sales are reported this week at 2*s.* 10*d.* per lb. net, spot, and for ½ ton 2*s.* 9*d.* has been refused. We have received a letter from a Minneapolis firm, in which they state that senega is "cornered," and some other wild statements are also made. Our readers have already been well posted in regard to the true facts respecting this drug. In the drug-auctions 4 bales of "cut" root were sold at 1*s.* per lb. "subject," but the sale was not afterwards confirmed, the seller wanting 2*s.* 10*d.*

SERPENTARY is very scarce at 1*s.* 8*d.* per lb., net, spot.

SPICES.—Business has been quieter this week and the auctions on Wednesday were small. Washed rough Cochin *Ginger* was bought in at 45*s.* per cwt., a few bags of cuttings sold at 35*s.*, and native-cut was bought in at 67*s.* 6*d.* per cwt. for medium. Jamaica sold at 36*s.* to 38*s.* per cwt. for common dark to ordinary dull, and at 42*s.* for middling dull washed. Japan is offering at 34*s.* to 35*s.*, and Bengal at 42*s.* per cwt. Zanzibar *Cloves* remain very quiet, but the quotation is unchanged at 3 11/16*d.* per lb. on the spot, and 3¾*d.* for January-March delivery. Ordinary East India *Capsicums* on stalk were bought in at 15*s.* per cwt. *Pimento* partly sold at 2¾*d.* per lb. for greyish, and at 2 7/8*d.* for fair. Wild *Cassia-buds* were bought in at 15*s.* per cwt., and ordinary *Cassia-vera* at 25*s.* per cwt. Black *Pepper* rather quieter owing to larger shipments; greyish Singapore sold at 6*d.* per lb., and good fair at 6⅛*d.* The quotations for forward shipment are 6⅜*d.* for September-October, and 6¼*d.* for January-March. White is steady at 10*d.* per lb. for Singapore, and 9*d.* for Penang on the spot.

London Drug-auctions.

THE auctions to-day consisted of "new and old drugs," for which there was little demand. A larger proportion than usual was offered "without reserve," so that "bargains" were more numerous, especially in East Indian goods. The feature of the sale was the slump in Rio ipecac., one of the principal importers having made up his mind to accept the inevitable, and the others will probably follow suit. Cardamoms sold very irregularly, but lower. Buchu-leaves were dearer. Sumatra benzoin was firmer. Dragons'-blood neglected and quiet. Jamaica honey was in fair demand at steady prices. Kamala and chiretta went cheaply, as also did eucalyptus oil. Tinnevelly senna sold at full to dearer prices. Native Jamaica sarsaparilla was dearer. Jamaica bees-wax was easier, and bleached Calcutta was lower. The following table shows the total quantity of goods offered and sold:—

	Offered	Sold
Ajowan-seed	199	0
Albumen	11	0
Aloes—		
Barbados	7	7
Curaçao (boxes)	118	118
Socotrine	24	0
Ambergris	9	0
Ammoniacum	5	0
Annatto-seed	18	0
Argol (Cape)	7	0
Asafetida	35	35
Asphaltum	31	0
Balsam copaiba	16	0
Peru	16	0
Tolu	25	*5
Benzoin—		
Palembang	60	8
Siam	3	0
Sumatra	149	20
Bird-lime (Jap.)	20	0
Buchu	2	2
Calumba	20	0
Camphor—		0
Jap. ref.	15	0
Jap. crude	52	0
Canella alba	5	0
Cannabis indica	20	0
Cantharides	2	0
Cardamoms	724	614
Cascara sagrada	50	0
Cascarilla	15	5
Cassia fistula	6	0
Castorum	1	0
Chamomiles	5	0
Chaulmoogra-seed	25	25
Chillies	30	0
Chiretta	83	57
Cinchona	43	0
Civet	14	0
Cocculus indicus	60	0
Coca-leaves (Ceylon)	7	0
Colocynth	29	6
Croton-seed	99	0
Cumin-seed	10	0
Cuttle-fish bone	20	0
Dill-seed	20	0
Divi-divi	2	0
Dragon's-blood	17	0
Elemi	21	0
Ergot	21	0
Galangal	5	0
Galbanum	2	0
Galls	7	7
Gamboge	5	0
Guaiacum	47	16
Gum acacia	89	3
Honey—		
Californian	60	0
Jamaica	403	202
New Zealaud	105	*10
North American	16	0
Ipecacuanha—		
Cartagena	33	0
Rio	122	50
Kamala	17	9
Kino	7	0
Kola	12	10
Lime-juice	27	0
Liquorice-root	165	0
Mastich	14	0
Menthol	3	0
Munjeet	21	0
Myrrh	28	0
Nux vomica	245	12
Oil—		
bay	2	0
cassia	16	0
castor (E.I.)	349	0
chaulmoogra	8	0
cinnamon	13	1
croton	1	0
eucalyptus	121	28
geranium, Bourb.	9	0
lemongrass	66	0
lime (W.I.)	6	2
olive (Ital.)	15	0
orange	14	0
peppermint(Jap.)	10	0
rose (E.I.)	4	1
Opium	5	5
Orange-peel	71	2
Orchella	5	0
Orris	9	0
Patchouli	6	0
Pumice-stone	40	0
Quince-seed	3	3
Rhatany	10	0
Rhubarb	106	21
Saffron	4	0
Sarsaparilla—		
grey Jamaica	51	16
native Jam.	12	12
Guatemala	13	0
Scammonium	8	0
Scammony-root	12	0
Seedlac	43	0
Senega	4	4
Senna—		
Alexandrian	160	0
Tinnevelly	255	50
Soy	50	50
Squills	34	10
Storax	10	10
Tamarinds (E.I.)	15	0
(W.I.)	31	13
Tragacanth	35	15
Tonka-beans	2	0
Turmeric	143	0
Vanilla	1	1
Vermilion (Chin.)	4	0
Valerian	12	0
Wax (bees')—		
Australian	5	1
Benguela	9	0
East Indian	141	52
Freuch	5	0
Italian	5	0
Jamaica	57	6
Madagascar	350	195
Spanish	24	0
Zanzibar	304	60

* Sold privately.

ALBUMEN.—Five bags blood albumen (12·18 per cent.) were limited at 10*s.* per unit.

ALOES.—Curaçoa formed the bulk of the offerings, and rather lower prices were accepted for good capey, which brought 19*s.* to 19*s.* 6*d.* per cwt., subject. Dull black sold at 14*s.*, and for 7 small tins of fine livery from Barbados, 29*s.* was paid; 4 boxes of fair livery Curaçoa sold without reserve at 21*s.* per cwt. Good bright but soft Socotrine was limi ted at 72*s.* 6*d.* per cwt.

ASAFETIDA.—A parcel of 35 packages, being the tail-end of a shipment which had been offered several times before, was put up "without reserve" to-day, and sold at from 24*s.* to 25*s.* per cwt. for fair heavy block with loose, at 19*s.* for ditto but more heavy, and at from 10*s.* up to 16*s.* for very poor heavy block, and 4*s.* for mostly "stone."

BALSAM TOLU.—A parcel of five cases good hard genuine quality in large tins, offered in auction, were sold previous to the sale at 1*s.* 1*d.* per lb. Good hard in small tins was held at 1*s.* 4*d.* per lb.

BENZOIN.—Although little Sumatra was sold, prices showed an advance of about 5*s.* per cwt. on the previous auction. Of Sumatra 20 cases sold at from 6*l.* 12*s.* 6*d.* to 6*l.* 15*s.* per cwt. for fair almondy seconds. Low woody Palembang sold "without reserve" at 16*s.* per cwt. A few fine cases were bought in at 40*s.*, and fairly good glassy seconds at 37*s.* 6*d.* No Siam sold.

BUCHU.—Only 2 bales were offered, one of which sold at 1*s.* 1*d.* for round greenish, and 1*s.* for faded. They are very scarce privately, and the above represented the first-hand stock.

CARDAMOMS.—A larger quantity than usual was offered to-day, but nearly half the quantity represented half-cases weighing 34 lbs. and upwards. There was a good demand at again very irregular but generally lower prices. Decorticated seeds were easier, 1*s.* 6*d.* to 1*s.* 8*d.* being accepted for fair to good dark. The following prices were paid for pods: Ceylon-Mysores, extra bold pale smooth, well bleached, 2*s.* 8*d.* to 2*s.* 9*d.*; bold pale, 2*s.* to 2*s.* 4*d.*; medium and bold pale, 1*s.* 7*d.* to 1*s.* 11*d.*; small and medium pale, 1*s.* 1*d.* to 1*s.* 4*d.*; very small pale, 1*s.*; brown and split, 1*s.* 1*d.* to 1*s.* 3*d.*; long lean pale, 1*s.* 1*d.* to 1*s.* 2*d.* Splits, medium and bold, 1*s.* 4*d.* to 1*s.* 7*d.*; small ditto, 1*s.* 1*d.* to 1*s.* 3*d.* Ceylon-Malabar, small to medium lean brown, 1*s.* to 1*s.* 3*d.* Native wild, very lean, 6½*d.*, subject. Forty-seven packages Mangalores were offered, and sold at from 2*s.* 8*d.* to 2*s.* 11*d.* per lb. for medium and bold round, slightly brown.

The exports of cardamoms from Ceylon from January 1 to August 11 have been:—

	1902	1901	1900	1899
Lbs.	396,242	284,923	354,839	305,594

Cascarilla.—Five barrels siftings sold at 35*s.* per cwt., being unchanged.

Chamomiles.—Fair white Belgian (1902 crop), first pickings, were held at 57*s.* 6*d.* per cwt.

Chaulmoogra-seed.—Twenty-four bags of seed catalogued under this name sold at 5*l.* "all at."

Chiretta was forced off "without reserve" at from mostly 1½*d.* per lb. for fair, and 1½*d.* to 1¾*d.* for good, with 2*d.* for one lot.

Coca-leaves.—No business in auction. Privately Huanoco are quoted 1*s.* per lb., and Truxillo 10*d.* per lb.

Colocynth.—For a case of pale Spanish pulp 5*s.* per lb. was asked. Medium to bold pale Turkish apple was limited at from 1*s.* 5*d.* to 1*s.* 6*d.*; and for 6 cases from another catalogue 1*s.* 5*d.*, subject, was paid; a bid of 3*s.* is also to be submitted for brownish pulp.

Dragon's-blood.—For fine block, rather mixed with dull, 9*l.* 7*s.* 6*d.* was refused, 11*l.* being wanted. Good thin reed, nicely wrapped, was held at 8*l.* 15*s.*, at which figure business has been done privately; for fine block 13*l.* is also asked privately.

Elemi.—Neglected. Fair pale soft Manila gum is obtainable at 85*s.* per cwt., and for 7 cases hard clarified which have been previously offered no bid was obtainable.

Ergot.—Offers of the new crop are fairly plentiful at the moment, dealers asking 1*s.* 4*d.* per lb., c.i.f., for Russian. In the drug-auction 6 cases bold, clean, sound Spanish were limited at 1*s.* 6*d.*, a bid of 1*s.* 4*d.* being rejected in one instance.

Gamboge.—Five cases Siam pipe of mostly good orange fracture, slightly blocky, were limited at 13*l.* per cwt.

Guaiacum.—Lower. For good glassy block 1*s.* 1*d.* was refused, 1*s.* 2*d.* being wanted. Four boxes rather drossy broken block sold "without reserve" at 10½*d.* per lb., and slightly drossy and broken block sold at 9*d.* to 10*d.*, and low at 6*l.* to 7*d.* per lb.

Gum Arabic.—A case of pale picked Trieste grain sold "without reserve" at 90*s.*, and 2 cases yellowish tear realised 67*s.* 6*d.* per cwt.

Honey.—Jamaica sold at steady rates. Pale amber liquid and pale set sold at 17*s.* 6*d.* per cwt. Dark to fair amber liquid brought from 15*s.* to 16*s.* 6*d.*; thick white and set was held at 25*s.* per cwt.

Ipecacuanha.—Druggists were able to replenish their depleted stocks of the Rio description to-day, as the orders of the principal importers were "to sell," and they did so to the extent of 50 odd bales, at a decline of fully 2*s.* to 2*s.* 6*d.* per lb. Good bright sound Rio sold at from 7*s.* to 7*s.* 4*d.* per lb., and ordinary lean to fair at from 6*s.* up to 6*s.* 8*d.*, with sea-damaged at 6*s.* 6*d.*; 32 bales were offered from another catalogue, but limited at from 8*s.* 10*d.* to 9*s.* Cultivated Rio was offered by one broker only, and 8*s.* 6*d.* was mentioned as the price in the absence of instructions from the importers. For fair average Cartagena 3*s.* 6*d.* per lb. will readily buy, and in one instance a bid of 3*s.* 3*d.* was refused.

Kamala.—Nine cases sold "without reserve" at from 2½*d.* to 2¾*d.* per lb. for good bright quality, being about 2*d.* cheaper.

Kola.—Fair washed West Indian sold at 3¾*d.* per lb. for 4 bags, and 1½*d.*, subject, was paid for 6 barrels "fresh" from Grenada; wormy Ceylon were limited at 3*d.* per lb.

Nux Vomica.—Medium to bold bright seed from Bombay sold "without reserve" at 9*s.* 6*d.* per cwt., and pickings at 3*s.*

Oil, Cinnamon.—A case of bark oil of fair quality, labelled "A. F. Sleeman, Colombo," sold "without reserve" at 10*d.* per lb. The exports of bark and leaf oil from Ceylon from January 1 to August 11 have been:—

	1902	1901	1900	1899
Lbs. ...	66,536	31,671	39,996	54,604

Oil, Eucalyptus.—A parcel of 28 cases "guaranteed B.P." sold "without reserve" at 11¼*d.* to 11½*d.* per lb.

Oil, Lime.—Fair West Indian distilled was limited at 1*s.* 6*d.* per lb., and for hand-pressed 4*s.* was paid.

Orange-peel.—A bid of 3*d.* is to be submitted for thick ringlets, catalogued as "English hand-cut Seville bitter."

Orris.—Nine bags of fair Florentine sorts were offered "without reserve," but no bid was forthcoming; 22*s.* was wanted.

Quince-seed.—Lower. Three casks fair quality Spanish from Lisbon sold at 1*s.* per lb.

Rhubarb sold at unchanged rates, as follows:—High-dried, medium to bold flat, with three-quarters pinky fracture, good bright coat, 9*d.* per lb.; small to bold ditto, 8½*d.*, "subject." Canton, good pickings, round and flat, 11*d.*; medium to bold flat, 1*s.* 3*d.*, "subject." Medium round Shensi, with three-quarters good pinky but rather loose fracture, 2*s.* per lb. Arrivals are coming to hand slowly, but stock in warehouse is low, as will be seen from the statistics.

Sarsaparilla.—The first parcel of grey Jamaica was firmly held at 1*s.* 4*d.* for good fibrous sound, and 1*s.* 2*d.* to 1*s.* 3*d.* for damaged; but there were no buyers in auction at these figures. From another catalogue 4 bales roughish sound sold at 1*s.* 3*d.*, and country-damaged, 1*s.* to 1*s.* 2*d.* per lb. For Guatemala of doubtful quality a bid of 5¼*d.* per lb. is to be submitted; 8*d.* was named as the price. Twelve bales native Jamaica sold at from 8*d.* to 10*d.* for dull red and grey to 11½*d.* for bright red, being dearer. Privately Mexican is quoted on the spot at 4*d.*, and Honduras 1*s.* 2½*d.* per lb., spot.

Senna.—Tinnevelly was in good demand, but the quality was again disappointing. Anything with fair colour in was eagerly snapped up, and full to higher prices were paid by the Continent and home trade buyers. The arrivals are not coming in at all freely at the moment, though, of course, there are still two months to look forward to. The following prices were paid: Medium to bold greenish leaf, 5½*d.* to 6¼*d.* per lb.; good medium greenish, 3½*d.* to 4¾*d.*; fair small and medium, 2¼*d.* to 2¾*d.*; and ordinary yellowish and specky, 1½*d.* to 2*d.* per lb. Pods, 1¼*d.* to 2¼*d.* Alexandrian leaf was entirely neglected.

Soy.—Fifty casks good thick sold without reserve at 1*s.* 3*d.* per gal., duty paid.

Squills.—Good pale of the new crop sold at from 3½*d.* to 4*d.* per lb.

Tamarinds.—Palish Antigua partly sold at 13*s.* per cwt., subject to being free of duty. Palish to dark squashy West Indian (ullaged) sold at 10*s.* per cwt.

Tonka-beans.—No business in auction. Privately Angostura beans are offered at 3*s.* 6*d.*, Surinam at 2*s.* 6*d.*, and Pará 2*s.* 3*d.* per lb., spot.

Turmeric.—Privately, small common rough whole bulbs have been sold at 7*s.* 6*d.* to 7*s.* 9*d.* per cwt., spot; finger is neglected. Bengal, for arrival, is easier at 9*s.* 6*d.* c.i.f. Middling Calicut finger has been sold at 12*s.* to 13*s.*, spot.

Wax, Bees'.—Jamaica was neglected and about 2*s.* 6*d.* to 5*s.* easier; fair to good brown and red sold at 7*l.* 12*s.* 6*d.*, and pale grey at 7*l.* 10*s.*; fine red was held at 7*l.* 15*s.* to 8*l.* per cwt. Fine pale yellow Madagascar was limited at 6*l.* 15*s.*, and a string of 195 mats fair pale yellow to dark-brown block sold at 6*l.* 10*s.* Zanzibar, fair, part wormy and drossy, brought 6*l.* 5*s.* to 6*l.* 7*s.* 6*d.* per cwt., and Bombay 5*l.* 15*s.* per cwt. Forty-nine cases of Calcutta wax were offered "without reserve," and sold at from 6*l.* 10*s.* to 6*l.* 12*s.* 6*d.* per cwt. for good bleached, and from 5*l.* to 5*l.* 15*s.* for dull to fair ditto. These prices show a decline of about 20*s.* Pale grey to red mixed Australian brought 6*l.* 15*s.*, and Antigua 7*l.* 5*s.*

A Chemist's Death.—Mr. William F. Ellis, chemist and druggist, of the Grand Parade, Harringay, died on Wednesday, after a brief illness. Three weeks ago he went to Margate to spend his holiday, returning on Monday last, and seriously ill. He died from pneumonia. Mr. Ellis went to Harringay four years ago. He was formerly associated with the Great Northern Hospital and the Homœopathic Hospital. He was a member of the Tottenham District Council, and had a most promising business and municipal career before him. He was only 30 years of age, and leaves a widow and one child.